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◀ Christopher has had eight No.1 singles in China since 2014

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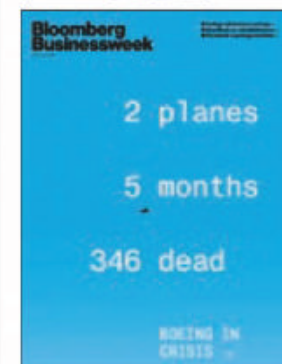
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● Theresa May's much-maligned Brexit plan suffered another crushing—and perhaps fatal—defeat.

The U.K. Parliament then voted to reject, leaving the European Union without a deal. That raises the prospect that the divorce will be delayed or even reversed.

● Boeing faces an unprecedented crisis of confidence after all 157 people on board were killed in the crash of a 737 Max 8 airliner in Ethiopia. Carriers and regulators around the world grounded the company's most important jet pending an investigation into the disaster. ▷ 15



● Paul Manafort, President Donald Trump's former campaign manager, was charged by state prosecutors in New York for residential mortgage fraud and falsifying business records, just minutes after his sentence for federal crimes was raised to seven and a half years.



● Brookfield Asset Management agreed to buy a majority stake in Oaktree Capital Group, in a deal worth about **\$4.7b**. The combined company would rival Blackstone Group as the world's largest alternative money manager.

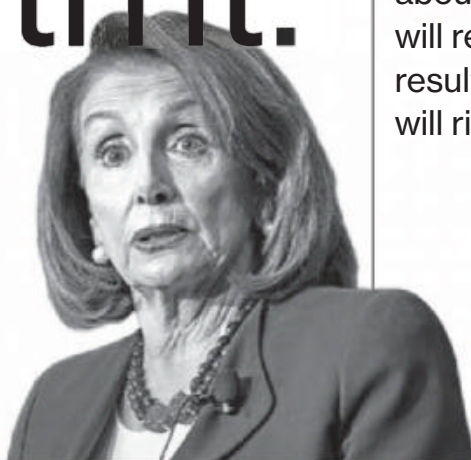
● Barrick Gold dropped its hostile \$17.8 billion pursuit of rival Newmont Mining after the companies agreed to create a joint venture with their operations in Nevada.

● Nvidia unveiled its biggest acquisition, agreeing to buy chipmaker Mellanox Technologies for **\$6.9b** to help it push into the growing market for data center components.



● Zinedine Zidane returned to Real Madrid as coach, a position he abandoned abruptly less than a year ago after leading the Spanish soccer club to multiple victories.

● “He’s just not worth it.”



House Speaker Nancy Pelosi on the possibility of seeking impeachment of Trump.

● Tesla announced an about-face on its plan to shutter most of its physical stores to save money that would help cut the price of some models. Instead, about half of the stores will remain open, and as a result, prices of some cars will rise.

● Marking the 30-year anniversary of the World Wide Web, its inventor, Tim Berners-Lee, cautioned that the internet risks “the downward plunge to a dysfunctional future.”

- Volkswagen is charging ahead with plans to produce 22 million electric cars over the next decade.
- Floods and landslides caused by torrential rain devastated parts of São Paulo, killing at least 12 people.
- Algerian President Abdelaziz Bouteflika said he won't seek a fifth term after ruling the North African nation for 20 years.
- Former Goldman Sachs banker Tim Leissner was banned from the industry for his role in the 1MDB fund scandal.



► What to Do About Britain

The European Council meets on March 21-22 in Brussels for a summit focused on jobs, growth, and climate change. But the real issue will be Brexit, with the dust from the chaotic votes in the U.K. Parliament still settling and the country not sure about what it will do next.

► OPEC and its allies meet on March 18 in Baku, Azerbaijan, to assess their oil-production agreement ahead of a Vienna policy meeting next month.

► Fed Chair Jerome Powell holds a press conference on March 20, after the release of the U.S. Federal Open Market Committee's interest-rate decision.

► Data on German investor confidence will be published on March 19. The mood in Europe's largest economy has picked up modestly in recent months.

► The Bank of England unveils its rate decision on March 21. The U.K. economy started the year stronger than expected, despite Brexit woes.

► Baselworld opens its doors on March 21 in Switzerland to visitors looking for the latest trends in fine watches and jewelry.

► China's Tencent releases its fourth-quarter earnings on March 21. The web giant has recovered after a stock slump claimed almost half its market value last year.

■ BLOOMBERG OPINION

His Worst Economic Idea

● Trump's proposed tariffs on cars and parts would cause great damage and do no good. Congress should intervene

Evidently, Donald Trump is still toying with the idea of imposing steep tariffs on cars and automotive parts. In a White House brimming with bad economic ideas, this would be the worst yet. In February, the U.S. Department of Commerce completed a confidential report on the national security implications of auto imports. If the probe uncovered a threat of some kind, real or imagined, the president would have wide latitude under the law to restrict or limit imports. Trump has mused about 25 percent duties to induce the European Union to make trade concessions. Europe has to "play ball," he's said, or "we're going to tariff the hell out of you."

This would be as foolish as it sounds. A tariff that size would be a tax increase of perhaps \$80 billion on the U.S. economy. By one reckoning, it could reduce U.S. gross domestic product by \$62 billion. The U.S. auto industry opposes the idea, because it would harm the very industry it's supposed to protect. America's automakers rely on imported parts that aren't produced or easily available domestically. If a 25 percent tariff were imposed, not only would costs rise but sales would also plunge by perhaps 2 million cars a year. According to one analysis, the industry's production could fall 1.5 percent and leave 195,000 American jobs at risk. Retaliation by

trade partners might triple that tally. Consumers, too, would feel the pain: On average, the price of imported cars could rise nearly \$6,000, and domestic cars could go up by \$2,000. Careful targeting of any new tariffs could reduce these costs somewhat, but even then the overall effect isn't in doubt.

These tariffs would also gratuitously antagonize America's allies. Germany's car exports would fall 7.7 percent, according to one study, at a time when its economy is already struggling. EU retaliation seems certain and would come at the expense of U.S. farmers and manufacturers. "We can also do stupid," said the head of the European Commission, aptly.

Maybe the worst aspect of the whole scheme—which would be saying a lot—is that its rationale is brazenly false. The claim that imported cars and parts pose a national security threat is absurd. (Fewer than half the autos sold in the U.S. last year were imported; of those, 98 percent came from close allies. Many of the companies that would be most affected assemble their cars in American factories.) Trump's steel and aluminum tariffs were imposed on the same indefensible basis. This approach is a license for all governments to declare specious emergencies of their own. It represents a mortal threat to the global trading system that has benefited the U.S. for decades.

"I happen to like tariffs," Trump said recently, as if that's all one needs to know. Actually, in a way, it is. Leaving trade policy to this administration is reckless and economically unaffordable. Congress should reassert its constitutional authority over tariffs, demand a review of national security designations, and bring this nonsense to a stop. **B**

Written by the Bloomberg Opinion editorial board

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REMARKS



A Losing Equation for Baseball

● New analytics are throwing America's national pastime into economic upheaval

● By Eben Novy-Williams, Ira Boudway, and David Ingold

Imagine a business in which the worst performers are among the highest-paid employees. And imagine that top performers' talents start to fade soon after their salaries soar.

This is what it's like for Major League Baseball owners who are trying to profit, or at least not bleed money, in a labor market that makes little sense in any other context. In the past 15 years, no group of players has seen a bigger increase in salary share than the league's worst, while no group has seen its share decline faster than the best.

Before shedding tears for team owners, consider the situation players face. The league's labor agreement is built around a rigid seniority system: In their first six years, players can negotiate only with the team they're on. After that, they can test free agency. The upshot is that players are generally underpaid while they're young but, if they're good enough, can make up the losses later in their career. It's an arrangement that's kept the \$10 billion enterprise stable for decades.

But this winter the system shows serious signs of strain. Owners are increasingly reluctant to pay for past performance, and players aren't happy about that.

The two most talented free agents, Manny Machado and Bryce Harper, sat unsigned for months before striking a deal with the San Diego Padres and the Philadelphia Phillies, respectively. Their contracts were record-breaking—but many others, some coming off career years, settled for significantly less than projected, leading high-profile players to speak out. The “system is broken,” tweeted seven-time All-Star Justin Verlander, a Houston Astros pitcher who could be a free agent a year from now. “It's obviously not good for baseball,” Mike Trout, the game's best player, told reporters in February. The acrimony will likely fade with the arrival of Opening Day on March 28 as the focus turns to winning games, but it will eventually grow louder as the two sides approach the end of their current five-year labor deal in 2021.

When players gained free agency in the 1970s—a landmark moment in sports history—the MLB Players Association became one of the nation's strongest unions. Forty years later, “the balance is shifting back toward owners,” says Joel Maxcy, a sports economist at Drexel University in Philadelphia.

Baseball's labor market is different from those of the National Football League or the National Basketball Association. There's no strict payroll ceiling or floor, which makes it the only U.S. league in which owners bid for players in an open market. But there are rules: During their first three

years most players make the league minimum, about \$550,000. After the third year players and their teams can negotiate a new salary; if a player doesn't like what his team offers, he can go before a panel of arbitrators to explain why his pay should be higher. After six years a player can become a free agent.

Since 2006, the share of league revenue paid to players has ranged from 54 percent to 58 percent. In February right fielder Harper landed a 13-year, \$330 million deal from the Phillies, and third baseman Machado got 10 years and \$300 million from the Padres. But owners are increasingly reluctant to offer such long and rich contracts.

To see why, consider 39-year-old left fielder Matt Holliday, a seven-time All-Star who spent his prime as one of baseball's best hitters. On the back end of his career, he continued collecting a \$17 million annual salary as his performance fell sharply.

The Colorado Rockies drafted Holliday in 1998, and he made his big-league debut in 2004 at age 24. By his third season he was an All-Star and a fantastic bargain at \$500,000. In his fourth he led the National League in hits, runs batted in, and batting average and helped the Rockies to the club's only World Series appearance. That off-season, with two more years until free agency, he was rewarded with a two-year, \$23 million extension to avoid arbitration.

After the 2009 season, Holliday became a free agent and entered the brief phase of his career when pay matched performance. Just before his 30th birthday, he signed a seven-year, \$120 million contract with the St. Louis Cardinals. In the first three years of that deal, Holliday was the slugger the Cardinals paid for, helping the team win a World Series in 2011. But by the end of the agreement in 2016, he was one of the game's most overpaid players.

The league Holliday joined in the mid-2000s is very different from today's. The use of advanced statistics in player evaluation, promoted as revolutionary in the 2003 best-seller *Moneyball*, is now standard practice. In the age of analytics, younger players contribute much more, at least according to the wonks' preferred metric: WAR, for “wins above replacement.” WAR boils all of a player's contributions into a single, management-friendly number. How many more wins can you get over the course of a season by playing this guy instead of some easily hired replacement? WAR is supposed to be the answer, and increasingly teams get WAR from younger players.

The league says this youth movement reflects a change in performance as players age. Stringent testing and severe penalties have reduced the use of career-extending steroids. “Players decline more quickly than they did in the past,” MLB Deputy Commissioner Dan Halem says. “That's a trend that our clubs are reacting to.” This shift can also be self-reinforcing: If owners pack rosters with young (and cheap) players, they'll of course count for more production.

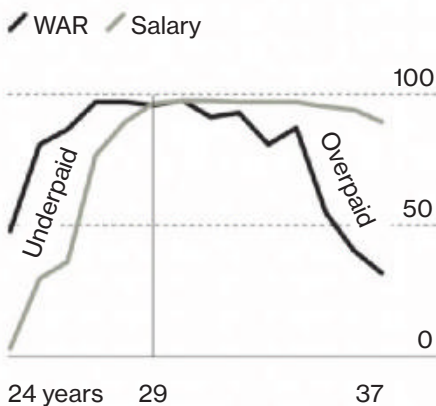
Regardless, the Holliday model is breaking down, with offers to midcareer players getting stingier. Some free agents this winter reported getting identical offers from multiple teams on the same day. This hints either at ►

Baseball's Backward Labor Market

Stars such as Matt Holliday tend to earn more toward the end of their careers, when their performance is sliding. *Bloomberg Businessweek* analyzed MLB's labor market using the game's go-to stat for player value: wins above replacement. WAR is designed to measure the number of wins a player contributes relative to an easily hired replacement.

The Matt Holliday Problem

Holliday's percentile rank among all MLB players, by age

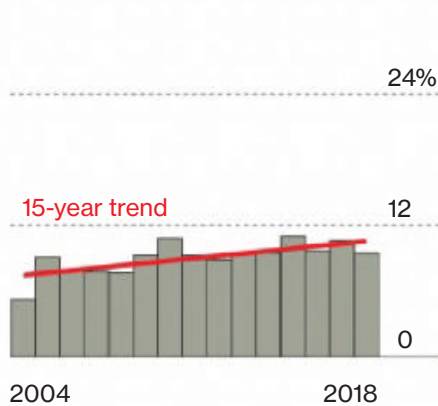


League average WAR and salary share, by age, 2004-18*

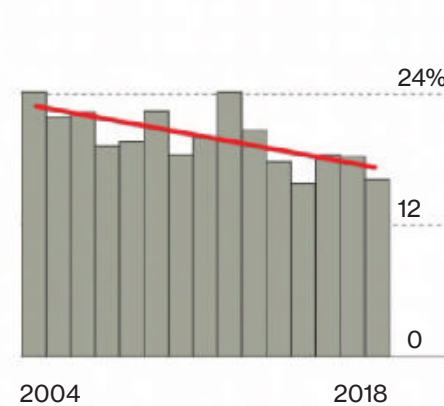


Gains for the Worst, Losses for the Best

Share of total MLB payroll for the worst 10 percent of players by WAR

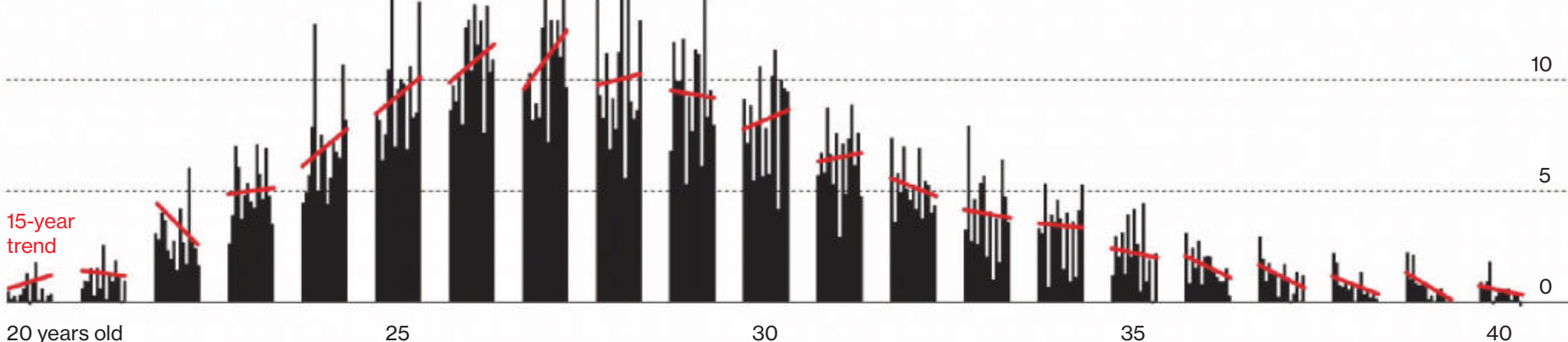


Share of total MLB payroll for the best 10 percent of players by WAR



Younger Players Are Adding More Value

Share of the league's WAR contributions by age from 2004-18



◀ collusion—which MLB denies—or that every team's analytics department churns out the same projections for owners desperate to avoid paying former superstars to ride the pine. "I don't know that you'll see too many more 10-year deals," Houston Astros owner Jim Crane said at a fundraiser in January. "The analytics are so good, and a lot of those deals never work." That same month, San Francisco Giants three-time All-Star third baseman Evan Longoria wrote in an Instagram post, "Every day now someone is making up a new analytical tool to devalue players."

Here's a stat Longoria might not want to read: The worst player in the league last year as measured by WAR, Chris Davis, was also one of the 20 highest-paid. He has plenty of company: The bottom of the WAR chart is littered with former All-Stars finishing long-term deals.

There's some logic to this economy: Washed-up former All-Stars also tend to be leaders in the clubhouse and popular players. Keeping them around helps put fans in seats. But as national TV money and revenue sharing have made teams less reliant on ticket sales to balance their books, they've become more reluctant to dole out for sentimental favorites. "This

system worked really well for players for a long time," Drexel's Maxcy says. "I'm not sure that it fits the new revenue model."

The poster boys for baseball's newly cost-conscious labor market are Vladimir Guerrero Jr. and Mike Moustakas. Guerrero, an outrageously talented 19-year-old third baseman for the Toronto Blue Jays, will likely start this season in the minor leagues, so the Blue Jays don't have to start the clock on his six years before free agency. League rules dictate that a mere 15 days in the minors is enough to delay free agency for an entire season. That means the Blue Jays will live without him for a couple of weeks now to get another cheap season of production when he's in his prime.

The 30-year-old slugger Moustakas is at the other end of the curve. After setting the Kansas City Royals' single-season home run record with 38 in 2017, the third baseman entered free agency confident he'd land a multiyear, Holliday-style deal. Those offers never came. He took a one-year, \$6.5 million deal to return to the Royals, who traded him to the Milwaukee Brewers last July. A free agent again this off-season after a productive year, he knew what to expect. In February, he signed another one-year, \$10 million contract with the Brewers. **B**

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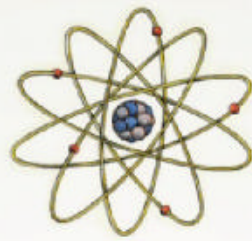
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The Plight of the 737 Max 8

● Two crashes, five months apart, transform tragedy into a corporate narrative Boeing is desperate to control

The skies had been, in aviation parlance, “severe clear” for Dennis Muilenburg since he took the helm at Boeing Co. four years ago. With air traffic increasing 6 percent annually, orders were booming, and revenue in 2018 topped \$100 billion for the first time in the company’s 102-year history. Competitor Airbus SE has been distracted with the humiliating commercial flop of its A380 flagship and a bribery scandal that’s led to a huge management turnover. With Boeing’s stock price tripling during his tenure, its market value soared above \$200 billion, making it the largest U.S. industrial company. It’s used the newfound clout to pursue acquisitions and ambitious projects such as a flying car.

The only cloud was the crash in October of a 737 Max 8 jet operated by Indonesia’s Lion Air Inc. That tragic but seemingly isolated incident has emerged as the turning point in a new narrative after a second deadly accident of the same model, in Ethiopia. It’s a scenario every chief executive officer fears: public panic over product safety puncturing a carefully groomed corporate reputation. For Boeing, the pressure is acute: The 737 is a cash cow that accounts for a third of its profit.

Regulators in China, the European Union, India, Australia, Singapore, and even Canada quickly grounded the plane, and dozens of airlines have stopped flying it. British tabloids the *Sun* and the *Daily Mail* dubbed the Max 8 “the death jet.” Fleeing investors quickly trimmed more than \$20 billion from Boeing’s market value. Muilenburg had to call President Trump to reassure him the plane is safe after he sent an off-message tweet decrying modern airliners as too complicated. Nonetheless, Trump and the U.S. Federal Aviation Administration belatedly ordered the jets grounded on March 13.

The two accidents weren’t identical, and there are still many unknowns. But as incomplete

information rockets around the world, Boeing and the slow-to-act FAA looked isolated in a new era of airline safety in which other countries no longer wait patiently for American guidance. “What we’re looking at here is almost a rebellion against the FAA,” says Sandy Morris, an aerospace analyst at Jefferies International Ltd. in London. “It’s the first time I’ve ever seen this happen.”

Muilenburg, an engineer whose blond crew cut gives him the look of a NASA astronaut, has followed a protocol of limiting communications about investigations until clues are painstakingly gathered and the accident’s cause is unmistakable. So far, the man and the mission seem at odds in the view of some public-relations experts. Boeing’s brief statements read “like an engineer and a lawyer wrote it together,” says Erik Bernstein, vice president of Bernstein Crisis Management Inc. in Monrovia, Calif. If Boeing were his client, he says, he’d put the CEO on a 737 for the world to see and advise him to show more empathy for nervous passengers. (In a memo to employees, Muilenburg extended “deepest sympathies to the families” of the 157 people killed on the Ethiopian flight and said “we’re committed to understanding all aspects of this accident.”)



The Max jets are still a small part of the global airline fleet. The first commercial delivery of a Max was in 2017 to a Lion Air subsidiary. Boeing has since delivered about 370 from a backlog of more than 5,000 orders. The Max is an updated version of the 737, a model introduced almost as an afterthought in 1967—it was dubbed the “baby Boeing” at a time the plane maker was more focused on jumbos. ▶

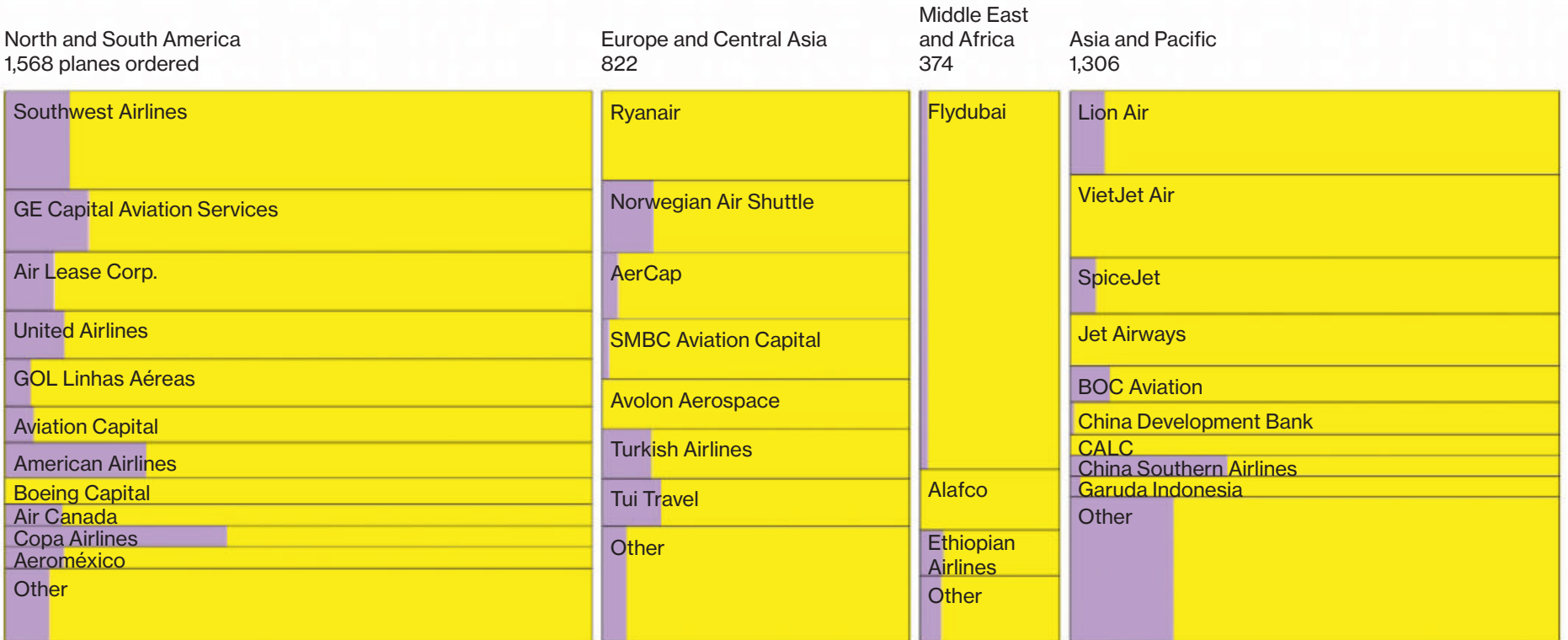
◀ Global groundings of the hot-selling 737 Max 8 have put Boeing on the defensive

Edited by
James E. Ellis

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Maximum Trouble

■ 737 Max planes delivered ■ Unfilled orders



DATA: BOEING. DOES NOT INCLUDE 942 737 MAX PLANES ORDERED BY UNIDENTIFIED CUSTOMERS

It's since become the workhorse of the industry even though Airbus was first out of the gate with a more fuel-efficient jet, a redesign of its popular A320. As Airbus picked up massive orders for the plane, dubbed the A320neo, Boeing pursued a similar strategy, adding newer engines and making other changes to the 737 to keep pace. Production of the 737, mostly the Max version, is due to ramp up to more than two a day this year. The plane generates \$1.8 billion a quarter in profit, according to Melius Research LLC analyst Carter Copeland. That's 37 percent of Boeing's \$19.6 billion 2018 gross profit.

The Lion Air crash stirred rumbles that Boeing had skimped on investments, pushing an aging design past its limits. While the A320 and 737 are similar in size, there are notable differences, making the upgrade more complex for the U.S. company.

The 737 is a far older design than the A320, which came to market at the end of the 1980s and boasted innovations like fly-by-wire controls. The 737 also sits considerably lower to the ground, so fitting the larger engines under the wings was an engineering challenge. Boeing raised the front landing gear by a few inches, but this and the larger engines changed the plane's center of gravity and thereby its lift. Boeing's response for the 138- to 230-seat Max was a piece of software known as the Maneuvering Characteristics Augmentation System, or MCAS. It intervenes automatically when a single sensor indicates the aircraft may be approaching a stall. In the Lion Air Max 8 that crashed just two and a half months after it was delivered, the pilots were baffled when the tool meant to stabilize the plane pushed

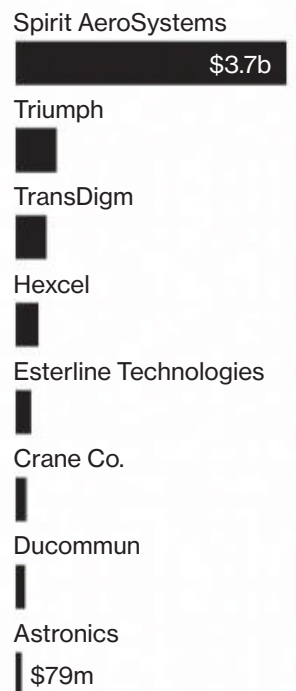
the nose down dozens of times, exerting more and more force until they lost control. All 189 people aboard died when it plunged into the Java Sea.

Data from the doomed flight suggested that the so-called angle-of-attack vane provided a faulty reading to the crew of Lion Air Flight 610. Many veteran 737 pilots first learned of the flight-control changes in the Max 8 in the aftermath of the crash, and some were furious with Boeing for omitting any description of them from most flight manuals. Some said Boeing should have required special training—something it's often loath to do because that adds costs for airlines, says former Continental Airlines CEO Gordon Bethune, who also managed the 737 program at Boeing. It's a selling point that a new model doesn't require pilots to get extra certification. "We had lots of discussions like this with the FAA," he says. "It's a give-and-take process, and Boeing normally is pretty aggressive."

Still, there were enough oddities in the Lion Air accident—such as worsening maintenance issues repeatedly missed by its technicians—that it was largely viewed as an isolated incident. That is, until the Ethiopian jet dropped from the sky six minutes after departing from Addis Ababa. The plane flew erratically, as with Lion Air's flight, and the pilots asked to return to the airport soon after takeoff.

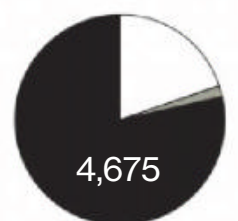
Following the latest crash, Boeing sent engineering leaders and sales executives around the globe to answer questions and explain a software upgrade they hope to roll out in coming weeks. The update, which takes about an hour to download, will make sure the MCAS compares data from two

● Estimated revenue from 737 Max orders for suppliers, 2020



● Boeing's order backlog, 2018

■ 737 Max
■ Other 737
□ Widebody planes



angle-of-attack vanes instead of relying on a single potentially faulty sensor. There will be limits to the number of times the system can nudge the nose down and to the amount of force it exerts. The redesign has been tested in multiple flight-simulator runs and flights, but it must also be certified by the FAA.

For all the rush to judgment, it isn't known if the software was even an issue in the Ethiopian Airlines crash. Eyewitnesses say they saw smoke beforehand, suggesting something else went wrong. Still, the plane maker could have avoided some of the blowback by moving faster to fix the software, says Peter Lemme, a retired Boeing engineer who designed the automated flight controls on the 767. "Back in November, Boeing had enough information to know that MCAS needed some fixes," he says. "Why didn't they get a software update out back then, as a priority, to make sure it would never be a factor again? Whatever held them back has cost them dearly."

The FAA's reticence to ground the Max didn't sit well with some passengers or airlines—including Ethiopian. The carrier said on March 13 that it will ask European air-safety experts to analyze the black boxes from the crashed jet, in a remarkable suggestion that U.S. authorities might not be able to be trusted to determine the cause of the disaster after so firmly saying that the model is safe to fly.

Boeing has weathered safety questions about the 737 before, notably in the 1990s, when the crash of a United jet in Colorado Springs killed 25 people and another of a USAir flight near Pittsburgh resulted in 132 fatalities. The crashes sparked questions about uncommanded movements of the rudder. Boeing redesigned a valve that U.S. regulators suspected as a cause, and the plane remained a best-seller.

Boeing also emerged largely unscathed from the grounding of the 787 Dreamliner in 2013, after two battery fires. The jets returned to service three months after the second blaze. If the same happens to the Max, it might cost less than \$1 billion to reimburse customers for lost revenue and make design updates, says Copeland, the Melius analyst.

The greater risk is to the reputation and future sales of a jet that was just establishing its bona fides with airlines. Many of these customers, such as Lion Air, are upstarts that don't have a long history with the 737. The largest Indonesian carrier plans to cancel a \$22 billion order for additional Max jets as a rift with Boeing widens. China's regulator was the first to ground the Max, a move that may linger in the minds of the 100 million or so Chinese who'll fly for the first time this year. The country is Boeing's most important customer and, aside from Airbus, its most dangerous potential competitor.

Boeing may ultimately decide to become its

own competitor. The decision by Muilenburg's predecessor, Jim McNerney, to update rather than replace the 737 was controversial, with some executives pushing for an all-new plane. That costly option could be back on the table if Max sales slow. How the Max's dinged reputation might affect Boeing's long-term product strategy must now be addressed by Muilenburg—who received \$18.5 million in compensation in 2018—and the company's board, which includes such influential and politically connected members as a former U.S. trade representative and a retired admiral, and next month will add Nikki Haley, former U.S. ambassador to the United Nations. As Gary Weissel, managing officer with Tronos Aviation Consulting Inc., puts it: "I don't know how much more you can eke out of this design." —*Peter Robison and Julie Johnsson, with Alan Levin, Rick Clough, Harry Suhartono, and Benedikt Kammel*

THE BOTTOM LINE Catastrophes in Indonesia and Ethiopia led to a near-global grounding of the latest version of Boeing's workhorse jet, which accounts for a third of the company's profits.

The Chinese Plane On Boeing's Radar

● State-owned Comac's C919 may be the big beneficiary of the American company's crisis

Airlines worried about buying from Boeing Co. have another supplier besides Airbus SE to choose from: the Chinese government. The state-owned Commercial Aircraft Corp. of China, or Comac, is building the C919, a narrowbody passenger plane with a capacity of about 170 that the company says has more than 800 orders worldwide. It will compete with the Boeing 737 Max 8—as well as the Airbus 320neo—as part of Chinese President Xi Jinping's ambitious gamble to build an aerospace industry from scratch and break Western companies' grip on the skies.

China grounded the Max 8 within hours of the Ethiopian Airlines crash, leading a global wave of suspensions. "These kinds of events provide an opportunity for Comac to get their foot in the door," says Chad Ohlandt, a senior engineer at Rand Corp. in Washington. "If they're smart, they're going ►

● Number of planes to be delivered to Chinese airlines over the next two decades

9k

◀ knocking on doors of whatever 10 airlines are considering buying narrowbody aircraft.”

The company, which started test flights of the C919 in 2017, has received 815 orders from 28 customers, including GE Capital Aviation Services. Comac didn't respond to requests for comment.

Beijing's aspirations extend beyond the C919. Comac is working with Moscow-based United Aircraft Corp. to develop the widebody CRJ929 that could eventually fly long-haul routes such as Beijing to New York. State-owned enterprises are developing a complete range of aircraft, including widebodies, turboprops, business jets, helicopters, seaplanes, and even zeppelins. “Strategically speaking, aviation manufacturing is a national imperative,” says Yu Zhanfu, a partner at Roland Berger Strategy Consultants in Beijing who focuses on aerospace and defense. “Once you have aviation manufacturing reaching economies of scale, it will lift the entire industrial chain.” Comac said in November that China's aviation market will take delivery of 9,000 planes, worth \$1.3 trillion, over the next two decades. Two-thirds of those will be single-aisle planes like the Boeing 737 and the C919.

Shanghai-based Comac is building a training center for maintenance engineers, flight attendants, and other airline employees who will fly the C919 and CRJ929. “They are doing four, five, or six things in parallel,” Marc Szepan, a lecturer in international business at Oxford's Said Business School, says of China's master plan. “They're firing on all cylinders.”

That puts Boeing in the potentially awkward position of competing against one of its partners. Comac and Boeing are co-owners of an assembly center south of Shanghai that opened in December

by delivering a 737 Max 8 to Air China. Another Comac plane, the ARJ21 regional jet, competes with aircraft made by Embraer SA, which is also forming a joint venture with Boeing. The buyers so far are smaller carriers, including Chengdu Airlines and Genghis Khan Airlines. “Comac is a great competitor and we respect them a lot,” Boeing said in an email. “They are also a great collaborator.” China accounted for about 14 percent of Boeing's revenue last year, according to data compiled by Bloomberg.

But it's not all clear skies for Xi. Chinese planes don't have the safety track record that Western ones do. More important, no Chinese company has the capacity to design and produce engines for commercial jets, says Yong Teng, a partner with L.E.K. Consulting in Shanghai. The C919's engines are by CFM International, a joint venture of General Electric Co. and France's Safran SA.

That technology is at the heart of charges the U.S. Department of Justice brought against two Chinese nationals in October. It said they were intelligence officers who allegedly tried to hack the computer systems of companies to obtain information related to commercial aircraft engines. The U.S. has also unsealed charges against an alleged Chinese agent and accused him of conspiring to steal trade secrets from U.S. aviation and aerospace companies. The Chinese government dismissed the charges. Says Nicholas Eftimiades, a lecturer in the School of Public Affairs at Pennsylvania State University in Harrisburg: “Aerospace technology is the No. 1 target for China espionage.” —*Bloomberg News*

THE BOTTOM LINE Chinese President Xi Jinping wants to make his country an aerospace superpower. The Ethiopian Airlines crash may have provided him an opportunity.

“Aviation manufacturing is a national imperative”

Ready to Bet on March Madness

● The startup Action Network prepares for sports betting to come out of the shadows

When the odds came out for the game between Duke and the University of Virginia in January, it was a seismic event at the Action Network's offices in New York. The staff at the digital media startup had been waiting for days to find out who was favored to win the matchup between two of college basketball's best teams. When the news broke on a Friday evening that oddsmakers favored Duke by four points, pandemonium broke out. Reporters and editors scrambled to publish stories—and place bets of their own. “They were screaming, like, ‘Oh

my God, Virginia minus four, go, go, go!” says reporter and senior producer Darren Rovell.

Action Network Inc. was founded on the premise that this mania, long relegated to Las Vegas casinos and black-market barroom sportsbooks, is about to find its way into the American mainstream. Last May the U.S. Supreme Court overturned the federal law that had confined legal sportsbooks to Nevada. Since then seven more states have begun to allow betting, and a couple dozen others are considering it. Nationwide, operators' revenue could reach

\$6.5 billion by 2023, according to researcher Eilers & Krejcik Gaming. Bettors in New Jersey, where legalization arrived last June, are already wagering almost \$400 million every month.

Action Network doesn't take wagers. Instead, it's looking to become the go-to source of information for sports bettors through a subscription-based service offering news, data, and analytical tools. "There are more and more people who might not have been inclined to bet who are now trying to figure out what it all means," says Chad Millman, who left a job as an editorial director at ESPN to become head of media at Action Network. The goal, he says, is to make those people feel confident enough to place a bet, or at least sound smart while talking sports at a bar.

The Chernin Group, an investment firm led by former News Corp. President Peter Chernin, formed the company in the fall of 2017, a few months after the Supreme Court said it would hear an appeal to overturn the law that limited betting. The site published its first story a few months before the ruling was handed down. "We're very much a moment-in-time business," says Chief Executive Officer Patrick Keane, a longtime media executive who took the job in November.

This year's NCAA men's college basketball tournament, the first since the ruling, is a big moment for the company. Tens of millions of Americans who otherwise rarely bet on sports will fill out a March Madness bracket and put down \$10 or \$20 to enter a pool with friends or co-workers. Action Network wants to convert these casual bettors into regular customers. It's offering a detailed preview of each game, rankings of which underdog teams are likely to make a deep run, and a service that will fill out brackets with optimized picks based on the number of entrants in a pool.

Action Network says it's been averaging almost 2 million unique visitors a month over the past three months. The best-performing stories, Millman says, are straightforward news about betting lines. The company also produces a handful of podcasts. The news stories and banter seek to build a sense of community that will get fans to download Action Network's app, then climb a ladder of paid services. The base \$8 monthly tier, the Edge, provides access to expert picks and information on where other bettors are putting their money. The next level, a \$50 service called BetLabs, allows users to filter through data from more than a decade of games in the NBA, the NFL, MLB, and other leagues to build their own betting systems. The top tier is Sports Insights, a \$250 monthly service that allows subscribers to see details of where money is flowing through more than 60 sportsbooks around the world.



Keane says the goal is to move customers from casual to serious betting. "That's how we build a big business," he says, "if we're able to have a shallow end, medium end, and deep end of the pool." The company will have to figure out how to speak to experienced bettors without intimidating new ones and to newbies without insulting veteran gamblers. Millman says he banned use of the betting term "moneyline" in headlines because he thought it would turn off casual readers. "They have positioned themselves very intelligently," says Chris Grove, a managing director at Eilers & Krejcik. "They have a nice blend of entertainment and cultural content alongside more utilitarian tools."

In February, Action Network announced it had raised \$17.5 million from a new group of investors including team owners from the NBA, the NHL, and MLB, as well as the former owners of the Ultimate Fighting Championship. The investment, and the vote of confidence it signals, gives Action Network a much-needed boost as it moves into competition with large sports media companies that are also investing in betting coverage. Two weeks before the company secured its new funding, AT&T Inc.'s Turner Broadcasting announced plans to put a studio inside the sportsbook at Caesars Palace Las Vegas Hotel & Casino, where it will produce betting-focused shows. And on March 11, ESPN began airing *Daily Wager*, an hourlong gambling show on its ESPNews network. March Madness, Keane says, will be an important test: "We're fighting tooth and nail against Yahoo! and ESPN and CBS and Fox." —Ira Boudway



● Chernin

THE BOTTOM LINE Operators' annual revenue from legal sports betting in the U.S. could reach \$6.5 billion by 2023. Action Network wants to ride that wave by providing data for new gamblers.

2

TECHNOLOGY

20

Silicon Valley's

Worst Nightmare

What's next for EU antitrust chief Margrethe Vestager?

Edited by
Jeff Muskus



South by Southwest long ago ceased to be just an annual film, tech, and music festival. The Austin conference—so popular it’s been known simply as SXSW for much of its 32 years—is now the haunt of ambitious politicians. This year they’ve come to bash the tech giants. At one event was Democratic Senator Elizabeth Warren of Massachusetts, who promised legislation that could break up Facebook Inc. or Alphabet Co.’s Google. At another was Senator Amy Klobuchar (D-Minn.), who declared that she wants to make antitrust “cool again”—a clear swipe at the same companies. And then there was the European bureaucrat who’s won global notoriety and who probably more than almost anyone else makes U.S. technology executives quake in fear and anger: Margrethe Vestager.

No. The European Union’s commissioner for competition can’t run for the White House—though Warren and Klobuchar may envy her accomplishments. They’re only threatening to curb the internet titans; Vestager has already led an antitrust crackdown. But the Dane, whose five-year term is up this year, was clearly indicating that she wants to stay on the world stage. Usually a cautious speaker who keeps her own counsel, she was at a SXSW event on March 11 in a red satin dress and pale blue sneakers winning audiences with pointed humor. She said she eschews the kind of pantsuits that Hillary Clinton and Angela Merkel wear. “Men realize you’re a woman even if you dress like a man with a suitlike jacket and a white blouse,” she said. “So why bother? Better stay true to the value of diversity.” (Cheers from the crowd.)

The EU’s antitrust chief isn’t pledging to string up Google and Amazon.com Inc. except as “a very, very last resort.” But at another SXSW event, she admitted that she’s “kind of running for office.” She’s about to gamble on a bid for a top EU post, building on the high-profile investigations that have made her a star of European politics. She is seen as “a warrior queen taking on the big tech might of the U.S.,” says Dennis Abbott, a consultant at Burson Cohn Wolfe in Brussels. She topped a BCW popularity poll of 28 EU commissioners.

Vestager needs to leverage her fame into the next big step in her political career. She’s set to be named on March 21 as one of several candidates on the slate for the center-left Alliance of Liberals and Democrats for Europe coalition, the third-largest group in the European Parliament, which hopes to make big gains at the EU-wide elections in May when it’s expected to merge with French President Emmanuel Macron’s faction. “ALDE is going to do quite well, the only centrist, pro-European group which is going to increase its size

after these elections,” says Doru Peter Fratescu, chief executive officer of VoteWatch Europe, a Brussels-based think tank.

Macron, who’s trying to counter populists and euroskeptics in the election, hopes allies such as Vestager can help spur support for the European project. “Europe is an amazing place. We’ve made it so far since the Second World War, when Europe was destroyed physically and spiritually,” Vestager told a SXSW audience. “Europe is the best place to live ever in the history in the world, especially if you’re a woman,” she said. “If we lack something, it’s confidence.”

Vestager has confidence in spades—and many believe she may have her eye on the EU’s most powerful post: president of the European Commission, a position held by Jean-Claude Juncker of Luxembourg. Nabbing that will be difficult, says Fratescu, because the bigger parties usually rotate the top jobs among themselves. A good showing for ALDE and big losses for the center-right may change that dynamic and at the very least give Vestager a chance to haggle for another top post. “There’s a strong tradition for a man, 60ish,” she said, downplaying her chances. “It would be a glitch in history if a woman from a rather small” European country “could end up” as president of the European Commission.

Being female is an advantage in a field of mostly middle-aged male candidates, says Nicholas Whyte, a Brussels-based senior director at consulting firm APCO Worldwide. “Gender balance becomes important when handing out the top jobs,” he says.

That plus Vestager’s history of challenging corporate tax arrangements and squeezing huge fines out of wealthy U.S. companies make her a viable candidate. Most European governments cheered her probes into multinationals’ tax deals with smaller low-tax EU countries such as Ireland. Apple Inc. was ordered by the EU to pay Irish back taxes of more than €13 billion (\$14.7 billion). Google was fined €6.7 billion for how it handled ads and phone apps.

Vestager isn’t universally loved in the EU. French and German ministers—with notable silence from Macron—howled last month when she blocked their prized plans to merge Siemens AG’s and Alstom SA’s rail operations to create a “European champion” to battle a Chinese trainmaker. Vestager said she was just doing her job: preventing the creation of huge companies that could dominate the European market and gain the power to increase prices at will.

If all else fails, could she continue as the commission’s antitrust chief? “Her chance of appointment in the next commission depends entirely on the whim of the Danish government,” says Whyte. Copenhagen would have to nominate her as their ►

“Europe is the best place to live ever in the history in the world, especially if you’re a woman”

representative, and Vestager isn't a member of the ruling party (she served as deputy prime minister in a previous government). Again, she will have to count on her popularity. A large majority of Danes want her to stay on as commissioner, according to a recent Danish poll for the *Altinget* newspaper. "It would be quite extraordinary if I could" stay, she said in Austin. "In my experience you never get something if you don't ask for it, not even a no. So I have said I would be more than happy to have another mandate as competition commissioner." (Applause.)

At SXSW, she was preaching to the converted. "Can we get a show of hands if you believe that these tech giants have become too powerful and need regulation?" CNN Digital editor-in-chief Meredith Artley asked an audience waiting to hear Vestager speak in a packed hotel ballroom. Almost every hand went up. Now, she has to get the EU's voters to be true believers, too. —*Aoife White*

THE BOTTOM LINE U.S. tech titans may be rejoicing that Vestager's term as antitrust chief at the EU is ending. But she could return to haunt them in a more powerful role.

Alexa Has 80,000 Skills And None You Need

- Amazon has put 10,000 people to work on its virtual assistant. It still lacks must-have applications



Kevin Deakin and his colleagues at his online trivia startup were one of the first to get a version of Amazon.com Inc.'s Echo smart speaker customized so that outsiders could create software for it. They'd gone less than a block after leaving the company's Seattle headquarters before coming to a decision. "We looked at this device and said, 'We've got to be on here,'" Deakin recalls. "It doesn't matter if we make any money."

Deakin and his co-workers at Musicplode Media Ltd. created a version of their music trivia game for Alexa, chasing a slice of what they correctly predicted would be one of the hottest trends in consumer technology. Like many developers, they're still waiting for the payoff. "It might be the brightest thing I've ever done. It might be the dumbest," Deakin says of the decision to embrace Alexa. "Time will tell."

Millions of people now use Echo-branded smart speakers to play music and respond to queries spoken from across a room, but surveys show that most people give up on the device and reach for their smartphones when it comes to more complicated tasks. Almost four years after inviting outside developers to write apps for Alexa, Amazon is still waiting for a transformative application for its voice system such as the spreadsheets of the Windows era or *Angry Birds* and *Pokémon Go* for the iPhone.

Amazon counts some 80,000 apps, or "skills" as it calls them, in its Alexa Skills marketplace. That seems impressive, but at this point in their

development, Apple's App Store and the Google Play Store each boasted more than 550,000 applications and had minted fortunes for many successful developers. "This platform is almost four years old, and you can't point me to one single killer app," says Mark Einhorn, who created a well-reviewed Alexa game that lets users operate a simulated lemonade stand. He was one of 10 developers interviewed for this story. Amazon declined to comment.

Chief Executive Officer Jeff Bezos' team created a novel technology with Alexa, so developers encounter a steep learning curve when building voice apps. Swapping visual cues for verbal ones forces them to unlearn habits from building software for smartphones and the web. Even after they create an app, there's no guarantee people will find it. Smartphone users can quickly eyeball a list of available apps on a screen, but it's harder to navigate multiple offerings on a voice-based service.

Amazon has worked hard to encourage users to experiment, emailing recommendations to Echo owners, programming a range of prompts they can say to try new things, and referring them to the companion Alexa smartphone app. One image on Amazon's screen-bearing Echo Show model seems to playfully acknowledge that challenge, showing a cartoon image of a person fishing overlaid with text suggesting people ask Alexa what skills are available.

Amazon boasted last year that it had 10,000 employees working on Alexa software and related devices. Bezos, who delegates most day-to-day

operations to lieutenants, remains personally involved with Alexa, according to a former employee who stays in touch with colleagues on the project. Bezos has even reviewed some skills prior to their publication on the marketplace.

Google and Apple Inc., which trail Amazon in smart speaker sales, also lack a voice-centric hit. Many people have given up entirely on looking for one: Half of smart speaker users say they don't seek out applications, according to a survey by Voicebot, a voice software news site, and Voicify, which makes developer tools. "There are kind of a cluster of features people are coming to expect for voice—a daily news summary, weather, timers, and a random fact," says James Moar, an analyst at Juniper Research who tracks voice software. Beyond that, he says, "people aren't really experimenting that much."

Amazon is investing more labor and money in Alexa, writing guides and building tools for developers and offering stipends to people behind the most successful apps. One is Nick Schwab, a developer at Ford Motor Co. who started tinkering with Alexa after purchasing a cylindrical Echo speaker. His first software program, which gathered and read the offerings from daily deals websites, didn't take off.

Later experiments were more successful. He built an app called Opening Bell, the first of its kind on Alexa, which let people ask for stock prices by company name. A couple of months later, eager to drown out a noisy neighbor, he built an Alexa skill that turned his hockey puck-shaped Echo Dot into a white noise machine. That was a hit, and he quickly expanded the range of sounds he offered customers.

Last year, Amazon gave developers their first tools to make money, selling Alexa skills. Schwab, the developer, took advantage, charging a \$1.99 monthly subscription for access to different sounds. Amazon takes a 30 percent cut on such sales, the same rate Google and Apple charge on their smartphone app stores.

Amazon also sends him and a small number of other favored developers monthly checks as an incentive to keep working toward a sustainable model for their skills-making businesses. Schwab declined to say how much those direct payments are, but he says they amount to a tidy bonus. The cash helped him pay for his dream car: a Tesla Model 3.

It's unclear how many people receive such payments, which, developers say, top out at \$5,000 a month for each skill, or how much the company has paid out in total. The payments are part of a program called Alexa Developer Rewards, which Schwab says are "meant to be a launchpad, to help boost the ecosystem until developers have the

ability to start businesses that are really sustainable."

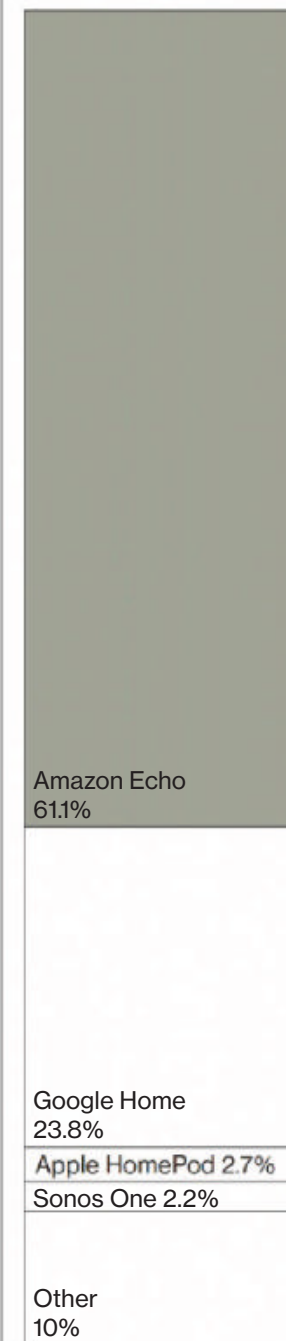
Amazon says 4 out of 5 Alexa users have tried a skill developed by outsiders. Dave Limp, the senior vice president who oversees the Alexa and devices group, says last year that music, for many, was the killer app. So-called smart home skills that let people use Alexa voice commands to control home appliances have also emerged as a popular use for the software. Many of those functions were built by Amazon or are modified versions of software that other large companies, such as Spotify or streaming video providers, had already created.

Many of the developers who've been successful with Alexa so far are, like Schwab, working on their own or in small shops. Popular apps tend to be organized around a single, relatively simple theme, such as Schwab's Sleep Sounds, trivia (Question of the Day), or productivity (a skill called Chompers tells jokes and facts to keep kids from losing focus while brushing their teeth).

Marketers and technology companies are keeping a close eye on Alexa, but many haven't built anything on the platform. Holding them back, people who advise those companies say, is a lack of expertise with voice-recognition technology and the uncertain prospect of making money on the platform amid a prohibition on most advertising on Alexa. There's also the essential question of what tasks people would complete with their voices rather than another device using their eyes and fingers. "Look at the internet in 1995—the first websites were not moneymakers," says Brandon Kaplan, CEO of Skilled Creative, a marketing startup that's worked on voice software projects with PepsiCo Inc. and CBS Corp.'s Simon & Schuster. "People are still playing around, figuring out what they can build."

Musicplode's game *Beat the Intro* hasn't had a problem finding a large base of users. That's in part because of its close relationship with Amazon, which has promoted Musicplode's work in best-of lists and when it introduces new products. The game challenges users to identify a song title and artist as quickly as possible after it starts playing. Last August, *Beat the Intro* began asking users who wanted more than 30 minutes of gameplay to opt into a paid subscription service. Early returns are promising, Deakin says, but they aren't yet sufficient to cover the cost of licensing the game's music catalog and streaming the songs to users. "If developers can't find a way to monetize their skills," he says, "they won't work with it." —*Matt Day*

● U.S. smart speaker market share by device, as of January 2019



THE BOTTOM LINE Amazon still owns the smart speaker market, but without compelling software it risks losing market share to Google or Apple.

Spit Tubes Inc.

● Vials from an OraSure subsidiary dominate the U.S. market for this key component of consumer DNA testing

If you're looking for a bellwether in the \$100 million consumer DNA-testing industry, OraSure Technologies Inc. would make a good choice. Before companies such as 23andMe Inc. can begin to assess just how Scandinavian you are, a vial carrying your saliva needs to make its way safely to the company's lab. That vial was almost certainly designed by OraSure's subsidiary, DNA Genotek. OraSure Chief Executive Officer Stephen Tang reported profits of about \$20 million on \$182 million in revenue last year, and these days his company's biggest business is spit.

A plastic tube may not sound like a mind-blowing invention, but saliva samples are extremely sensitive to time, temperature, and other factors, and the genetic information encoded within can easily degrade if not properly stored. For companies offering cheap DNA analysis, safely transporting saliva is no small feat. Each half-teaspoon sample needs to survive delays in delivery and any hot or cold spikes it's exposed to on its journey through the postal system, as well as on the customer's end. "You've got to make it as easy as possible for a person to spit in the tube, close the tube, recap the tube, and send it to you without any variation," Tang says.

OraSure's T-shaped tubes contain a patented mix of fluid preservatives. After you spit inside, snapping the cap shut pierces a membrane containing the chemical mix. At room temperature, a sample can last in one of the tubes for more than two years, according to the company. Aside from helping the sample resist environmental factors, Tang says, the chemicals also minimize any nonhuman DNA that might be present. "That's the secret," he says. "Saliva is not pure. It's got a lot of bacteria and other stuff swimming in it."

OraSure's tubes are the only ones the U.S. Food and Drug Administration has approved. Every major U.S. company in consumer DNA testing uses them except for Ancestry.com LLC, which in 2017 paid OraSure \$12.5 million to settle a lawsuit alleging it had copied the company's technology. (Ancestry agreed to pay OraSure a royalty on its own version of the tube and has said it was glad to put the matter behind it.) The millions of DNA-testing kits sold around the world in the past decade would hold more than a



standard backyard swimming pool's worth of saliva.

"The FDA approval gives customers confidence," says Mark Massaro, an analyst at investment bank Canaccord Genuity Group Inc., who estimates OraSure's market share at more than 90 percent. "That, and they can preserve saliva for a long time."

The company may not have the market to itself forever. Exact Sciences Corp., a molecular diagnostics company, acquired a leading developer of sample-preservation technology last fall that, given significant further investment, could have a clear path to FDA approval for its own spit tubes. Tang says he's focused on widening the uses for OraSure's technology. Clinical and academic labs also use the company's products, as do companies testing animal DNA. OraSure has also expanded into urine collection, to diagnose sexually transmitted diseases and other conditions, and feces collection, to compete in the emerging field of gut-bacteria analysis. "We are all about the integrity of the sample collection," Tang says. "It's a wide-open field." —*Kristen V. Brown*

▲ OraSure's tubes can preserve a saliva sample for as long as two years

THE BOTTOM LINE The popularity of consumer DNA-testing kits has made a quiet star of OraSure and its DNA Genotek subsidiary, which produces the unchallenged industry-standard spit tube.

HOW CAN WE BRING THE PEOPLE AND
PIECES TOGETHER SO THAT HEALTH
CARE WORKS BETTER FOR ALL OF US?

HOW

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HOW WELL GETS DONE

How The West Was Bought

The current outbreak of bank scandals raises a big question: Why can't the European Union police itself?

The dirty money scandals pouring out of Europe may seem like *déjà vu*. A crackdown on illicit cash made a big splash in the first half of this decade: HSBC Holdings Plc was fined \$1.9 billion in 2012 for handling funds from drug traffickers, terror groups, and Washington-sanctioned nations such as Iran; in 2014, BNP Paribas SA had to pay almost \$9 billion for dealing with Iran and other countries deemed pariahs by the U.S., such as Cuba and Sudan; and in 2015, Commerzbank AG had to hand over \$1.45 billion in fines to U.S. regulators for processing transactions with some of those same countries. It's practically taken for granted that there's always someone somewhere trying to make ill-gotten wealth look innocent by sneaking it through legitimate companies and banks. So why should it be such a shock that a bunch of Nordic banks appear to have been caught handling suspicious Russian money?

Russians hold about \$1 trillion outside their home country, according to both Bloomberg Economics and a 2017 study by economists Filip Novokmet, Thomas Piketty, and Gabriel Zucman that cited the U.K., Switzerland, and Cyprus among centers of funds. It's such an open secret that until the current revelations, relatively few Europeans seemed perturbed by that money coursing through their financial systems and real estate markets. Certainly not enough to push for real reform—although its impact was obvious in rental costs and restaurant prices in London

neighborhoods such as Knightsbridge and Mayfair.

For most of Russia's post-communist history, that salting away of the country's treasure, ill-gotten or not, has been considered a problem for Moscow and a boon for the West, which received cash that revived also-ran soccer teams such as Chelsea Football Club and boosted real estate demand in London, New York, and Monte Carlo. The U.K. showed its indifference to the effects of Russian money as recently as November 2017, when it allowed Oleg Deripaska—since sanctioned by the U.S. for having acted on behalf of a senior Russian government official—to raise \$1.5 billion by listing an energy and aluminum company he controlled on the London Stock Exchange.

Then, on March 4, 2018, former Russian spy Sergei Skripal and his daughter, Yulia, were rushed to a hospital after collapsing on a park bench near a shopping mall in the sleepy English cathedral city of Salisbury. That attack, using a military-grade nerve agent carried into the U.K. in a counterfeit perfume bottle, failed to kill the two targets. It did, however, kill Dawn Sturgess, whose boyfriend had found the bottle and presented it to her as a gift. The incident led to more than 100 Russian diplomats being expelled from Europe and the U.S., charges against the two alleged Russian intelligence operatives who attempted the assassination, and a surreal interview on Russian television in which the two claimed they were simply tourists.

The botched effort to kill Skripal and his daughter turned out to be more effective in souring Europeans on Russian money and stoking anger against the banks that enable its flow. "With Russia's strategy regarding the West, this has gone beyond banking supervision and has become a security issue," says Nicolas Véron, a senior fellow at Bruegel, an economic think tank in Brussels. The brazenness with which the act was carried out and the indifference to the lives of bystanders convinced many in Britain and elsewhere in Europe that Russia's actions were potentially dangerous to them.

That was the subtext in September 2018, when across the North Sea another bombshell revealed the scope of suspicious money flowing through Denmark's Danske Bank AS—much of it linked to Russia. In late February 2019, Sweden's Swedbank AB was implicated in the flow as well. The underlying fears raised by the Skripal assault and the scale of funds moving through European banks have pushed the issue beyond the narrow world of financial compliance and regulation. The way the Russians favored the Baltics, whose ►



NORDIC CLEAN

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ULTRA

2.0

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CAUTION: INGREDIENTS MAY CONTAIN BALTIC SALTS
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◀ financial system is dominated by Scandinavian banks, linked those funds to a region known as among the least corrupt.

Danske Bank minimized the problem at first, but reported in September it had moved about \$230 billion, much of it suspicious, through its Estonia unit. Since then a picture has emerged of a string of Nordic banks, including Swedbank and Finland's Nordea Bank Abp, whose Baltic units were used as channels by Russians eager to move their money into the West. Some of those transfers have been connected to funds tracked by Sergei Magnitsky, who died in a Russian prison in 2009 after exposing massive tax fraud by officials; other funds to Igor Putin, a cousin of Russian President Vladimir Putin who's been a board member at Russian banks later found to have siphoned off investors' assets or to have moved funds illegally out of the country.

(Swedbank acknowledged in February it had handled questionable transactions and has hired an outside firm to investigate; Nordea Chief Risk Officer Julie Galbo said this month that many of the allegations against the bank were already known and it is trying to establish if any were new. If so, they would be reported to the authorities.)

Magnitsky's former employer, the U.S.-born British financier Bill Browder, has worked for a decade to hunt down the funds from the \$230 million tax scheme, persuading the U.S. to pass a law going after the officials involved in the fraud and in Magnitsky's death. He's also been pushing banks, regulators, and courts in Europe to crack down on what he sees as questionable funds. "Our investigation continues to lead to new evidence and new information and new suspicious transactions," Browder said in a March 7 interview on Bloomberg Television.

While some of the funds that moved through the Nordic banks have been linked to money transferred from Russia, Moldova, and Azerbaijan, it remains unknown where much of the cash originated or who's behind most of the transactions. But it's clear the money didn't remain in the Baltic states. "Those moneys didn't go from Danske into the Baltic Sea, but they went from Danske into some other European bank," says Krisjanis Karins, Latvia's prime minister.

Germany's Deutsche Bank AG said in January it had started a broad internal probe into its own actions as the main bank that handled dollar transactions on behalf of Danske's Estonia unit, a role known as correspondent banking. Deutsche Bank has repeatedly said it's yet to find evidence of wrongdoing on its part. The U.S. Federal Reserve

is also examining Deutsche Bank's role in the affair, as is German financial supervisor BaFin. "There's a new sense of awareness among banks, supervisors, and the general public following the cases of money laundering that we've seen in Europe," says Thorsten Poetzsch, who oversees money laundering prevention at BaFin. He declined to discuss any specific institutions. "The banks realize that money laundering isn't just a question of cost, but that it can threaten their very existence."

European authorities have generally been slower to act on allegations of Russian money laundering than their U.S. counterparts. The U.S. Treasury blindsided Latvia and the European Central Bank in February 2018 when it named ABLV Bank as a primary money laundering concern over allegedly corrupt funds flowing through it from Russia and Ukraine, as well as for links to North Korea's weapons program.

Even before the Skripal attack and the extent of the Danske scandal was known, the U.S. had been pushing Europe to do more. Forcing ABLV, Latvia's third-biggest bank, out of business was an overt example of that, according to a U.S. official who focuses on money laundering. He says Latvia has since changed its policies. Karins, who became Latvia's prime minister in January, has pledged to tighten regulation and demand proof of the origin of cash in the financial system. He's less confident that the rest of Europe would follow suit.

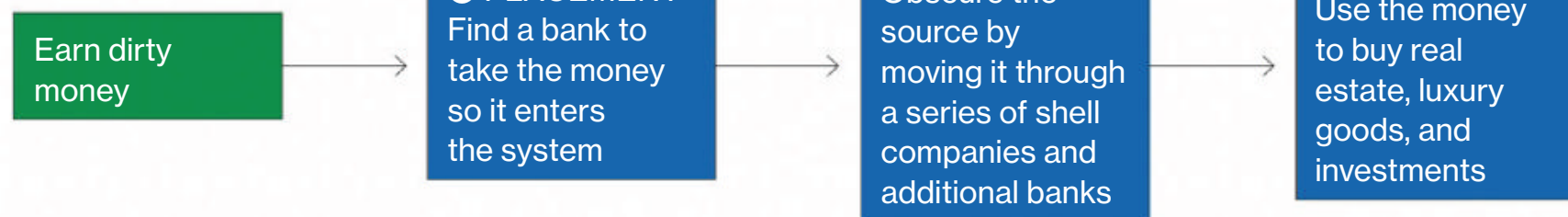
Lithuania has been trying to drum up U.S. support. Last June a team of Lithuanian central bank officials visited counterparts at the Federal Reserve and the Treasury Department to explain how the country's banking business was different from those of the other two Baltic states. "We are not naive," Lithuanian Central Bank Governor Vitas Vasiliauskas told reporters on March 8. "Large amounts of money [entered] the Baltic banking market—and some really large amounts were identified in the Danske case." He added that it would be unrealistic to believe that no suspicious funds transited through accounts in his country.

Estonia kicked out Danske in February. The bank responded by announcing its withdrawal from the entire Baltic region as well as from Russia. Kilvar Kessler, chairman of Estonia's Financial Supervision Authority (FSA), said this month that authorities in his country are doing everything in their power to clean up and have been doing so for half a decade. "We need a collective response, because it's an issue of reputation for the jurisdictions," Vasiliauskas added.

Traditionally, Scandinavia's reputation for being clean has been one of its calling cards. Transparency

"This has gone beyond banking supervision and has become a security issue"

Three Steps for Washing Cash



SOURCES: UNITED NATIONS OFFICE ON DRUGS AND CRIME; GLOBAL FINANCIAL INTEGRITY

International's corruption perceptions index lists Denmark, Finland, Norway, and Sweden among its top seven least corrupt countries. However, the index doesn't measure money laundering. The Financial Action Task Force, an intergovernmental body set up to fight money laundering and terror financing, gave the countries only middling ratings. (The U.S. received top marks in multiple areas.) And in 2017 the task force published a scathing analysis of Denmark's anti-money-laundering framework, harshly criticizing its ability to prevent such crimes. Jesper Berg, director general of Denmark's FSA, said last September that he'd made it his goal never to get such a bad report again.

So why does money slip through the cracks in Europe? That's because while funds are allowed to flow freely among banks and across borders, European rules against dirty money are implemented unevenly across the bloc and efforts to clamp down on illicit cash have largely been national affairs. Europe's banking rules were designed to protect taxpayers from having to bail out banks, not to prevent illegal flows.

That will be difficult to change. The European Commission, which functions as the executive branch of the EU, has proposed giving more authority to the European Banking Authority, allowing it to request national investigations. But extra staffing at this point is budgeted at just 12 people, a very limited number compared with the size of the task, according to José Manuel Campa, who's slated to take over the agency this year. Furthermore, some government officials have resisted efforts to create a centralized European enforcement authority. Given the surge in populist parties, it would be difficult to win approval for an EU-level enforcement agency that could order raids on banks or seize people's accounts. "This is about criminal activity, their own jurisdictions, their own police forces, and that is not a joint EU undertaking today," says Erik Thedeem, head of Sweden's FSA. "I'm a little bit skeptical about saying that everything should go central." On March 8 at a Stockholm conference on Europe's banking union, Berg, the Danish regulator, said coordinating financial intelligence

units, police, and prosecutors with a European agency would be a challenge.

The attack on Skripal and his daughter has had the most significant impact in the U.K. While several efforts to clamp down on London's role as a hub of dirty funds were already under way, the impact of the assassination attempt, with its use of a chemical weapon, was palpable. "The Salisbury attack has made it clear that there are grave national security risks coming from Russia, and money laundering is intimately tied up with that," Browder says.

Just before the incident, the U.K. had imposed its first so-called unexplained wealth order, which, with other tools, allows the government to seize property when the owner can't identify a legitimate source of the funds used for buying it. The British mood toward Russia darkened dramatically after the attack, and the U.K. took a series of actions against the country, including expelling 23 diplomats. It also chose not to renew the visa of Russian billionaire Roman Abramovich, who owns Chelsea Football Club, prompting him to move to Israel.

Europe has been embarrassed by the policing so many of its banks have gotten at the hands of the U.S. and has started to change rules and the size of fines for misconduct. A French court last month imposed a \$5.1 billion penalty, the biggest ever levied in the country, on Switzerland's UBS Group for helping clients launder hidden assets. UBS has appealed the ruling. In Germany, BaFin took the unprecedented step in September of appointing a monitor to oversee Deutsche Bank's efforts to improve money laundering and terrorism financing controls. In November, 170 law enforcement officials raided the bank's headquarters in Frankfurt looking for information on suspected money laundering and the Panama Papers, a series of articles in 2016 based on leaked emails from a law firm detailing shell companies it set up for clients. According to the U.S. official involved in money laundering enforcement, Germany and France are committed to fighting the practice. As long as that's the case, he says, the rest of Europe will follow. ▶

◀ But even in the U.K., change has been patchy. In early December the Home Office announced that it would suspend investor visas for the rich, closing a route to permanent residency and British citizenship that was popular with Russian oligarchs and wealthy Chinese. Less than a week later, it put that decision on hold. On March 7, the U.K. said it was tightening rules on the visas, requiring applicants to prove that they have had control of the required funds for at least two years or provide evidence of their source. It's easy for bankers, regulators, and politicians to talk about cracking down on illicit funds. Keeping that resolve is much harder. —Alan Katz, with Amanda Billner, Ethan Bronner, Nikos Chrysoloras, Nicholas Comfort, Kitty Donaldson, Aaron Eglitis, Milda Seputyte, and Frances Schwartzkopff

THE BOTTOM LINE The flow of Russian money didn't really alarm the EU until two things happened: a botched assassination and the humiliation of squeaky-clean Scandinavian banks.

The Gaming Maven Hedge Funds Heed

30

● Investors pay \$20,000 a year for the scoop on trends such as console sales

Hedge funds will look almost anywhere for an edge. When it comes to trading shares of Nintendo Co., they're turning to a tiny research shop in a corner of Tokyo better known for used booksellers and guitar stores.

Media Create Co. is run by Atsushi Hosokawa, a 63-year-old who got his start cold-calling video game stores for information. The firm tracks sales in Japan and other Asian countries, estimating shipments before official company releases with enough precision that it's drawn more than two dozen hedge funds as clients. Last year the company showed that shipments of Nintendo's portable Switch console weren't growing as quickly as expected, helping make millions for clients who shorted the stock—that is, bet on its price falling—before the game maker cut its shipment target in January.

Hosokawa's 11-person company is gaining prominence amid increasing disagreement over prospects for the Switch. Its latest data show Nintendo should easily hit its revised target when it reports results next month, suggesting shares could get a



▲ Hosokawa

boost after a dismal performance last year. “Our data doesn't fail,” Hosokawa says. “The Switch is still headed for growth in its third year.”

Media Create is one of many specialist data providers that sell investors information. The 25-year-old firm distinguishes itself through its close relationships with about 2,000 gaming shops and dozens of publishers, which provide Hosokawa's analysts with weekly point-of-sale and shipment data on hardware and software in Japan, South Korea, and Taiwan. The data aren't comprehensive, but his analysts extrapolate with what Hosokawa calls *keikensoku*. The term is usually translated as “rule of thumb,” but it literally means “measuring by experience.” Clients pay \$20,000 or more a year for reports that forecast local and international trends.

Hosokawa, who also makes some key statistics available every week on his website without charge, says it's easier to predict global trends for Nintendo than for rivals such as Sony Corp. That's partly because Nintendo publishes a regional breakdown of Switch sales, according to Serkan Toto, founder of Tokyo-based consulting firm Kantan Games Inc.

In the video game industry, consumer research can be particularly useful in the first few years after new-console launches, when hardware adoption provides a strong signal of future profitability. Hosokawa's major competitor in Japan is Kadokawa Dwango Corp. In the U.S., it's NPD Group. Hosokawa declines to name investors who use his service, but he says client interest in Nintendo jumped last May after Media Create's data showed Switch sales were flat—at odds with the market consensus of a jump of more than 30 percent in the fiscal year ending this March. Around the same time, Nintendo's stock began sinking as hedge funds amassed large short positions.

Switch's sales growth picked up after the release of a new pair of *Pokémon* titles and *Super Smash Bros. Ultimate* in December, but not nearly enough to reach Nintendo's annual target. The company cut the goal in January, sending shares plunging again.

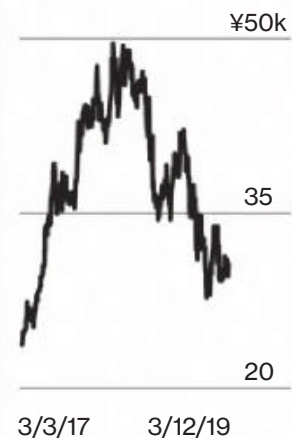
Despite Switch's lackluster 2018, Hosokawa is relatively bullish on the device, compared with some Wall Street analysts. He expects hardware

shipments to peak in the fiscal year that begins in April, implying Nintendo will sell more than the 17 million units it expects to ship in the current fiscal year. Wall Street analysts are divided, with some, including those at UBS Group AG and Mitsubishi UFJ Morgan Stanley Securities Co., expecting the company to sell fewer units next year.

Media Create's free weekly data dumps have also made it a popular source for gamers, individual investors, and armchair analysts online. Hosokawa says that's his way of giving back to the game industry, though he's unsure if the practice will continue after an upcoming company policy review. "With our data, we're trying to be the infrastructure for the whole industry," he says, outlining plans to expand his data collection to China and Southeast Asia. "I'd like to think that's why overseas investors trust us." —*Yuji Nakamura and Shintaro Inkyo*

THE BOTTOM LINE Hosokawa's firm calls up gaming shops and software publishers to get an early read on what consumers are—and aren't—buying.

● Nintendo stock price since the launch of the Switch, in Japanese yen



The **BATTLE** Over Broker Rules

● As Washington argues, some states want to make advisers put their clients first

Ordinary investors face a confusing situation when it comes to sizing up the people doling out financial advice. Can they be trusted to act in their clients' best interests, or should they be treated with caution—like a car salesman?

It turns out either answer could be correct, depending on the adviser. A registered investment adviser works for a fee and has a fiduciary duty to make the client a priority. Others, such as traditional securities brokers, are held to a lower standard and might skew their advice based on the commissions they receive for selling mutual funds, annuities, and other products.

Following the financial crisis, Washington tried to clear up things by drafting a single set of rules for the entire industry. It failed repeatedly. Last year

the Trump administration abandoned the initiative altogether. That, in turn, prompted lawmakers or regulators in several states to take matters into their own hands and push for fiduciary standards for financial advisers of various stripes.

Industry groups say this will add to complexity for investors. Financial-services companies and many brokers operate across state lines. All told, state-by-state rules "will result in a patchwork of conflicting conduct standards, resulting in investor confusion and ultimately less access to information and choice," said Kenneth Bentsen, president of the Securities Industry and Financial Markets Association, in a written statement.

Nonsense, argues Aaron Ford, who, as majority leader of the Nevada Senate, wrote a fiduciary law ►

◀ under which new regulations are being drafted. Ford, who was recently elected Nevada attorney general, says one reason he backed the bill was an experience he had in private practice representing an elderly client who'd been ripped off by an insurance salesman. "Looking out for the interests of clients is not difficult or an unreasonable expectation," he says. "I decided if the federal government wasn't going to provide protection for Nevada citizens, as majority leader of the Senate I would."

The federal government once seemed close to requiring most advisers to act in only their clients' best interests. The Dodd-Frank Act of 2010 directed the Securities and Exchange Commission to render an opinion on whether retail investors were being well-served by rules allowing a broker to sell any product deemed suitable for a client—an easier bar to clear. The agency decided they weren't. The following year it recommended creating a uniform fiduciary rule.

A half-decade later, the SEC still hadn't acted. But under President Obama, the Department of Labor, which oversees pensions, made its own move. Pointing to a study that found "conflicted investment advice" costs the nation's retirement savers \$17 billion a year, it drafted a fiduciary rule that applied to advice given on retirement accounts. Because some firms said they would apply the standard to all accounts, the Labor Department rule was expected to trigger sweeping changes in the advice business. Some companies said they would move away from commission-based sales.

But no sooner had President Trump taken office than his administration indicated it had no intention of following through on the initiative. Instead, under Chairman Jay Clayton, the SEC last April announced plans to draft an entirely new broker standard. Running hundreds of pages, the SEC's proposed Regulation Best Interest could do away with some of the industry's most egregious practices—such as sales contests and quotas—and force brokers to spell out conflicts in plain language. It also falls well short of what fiduciary purists have called for.

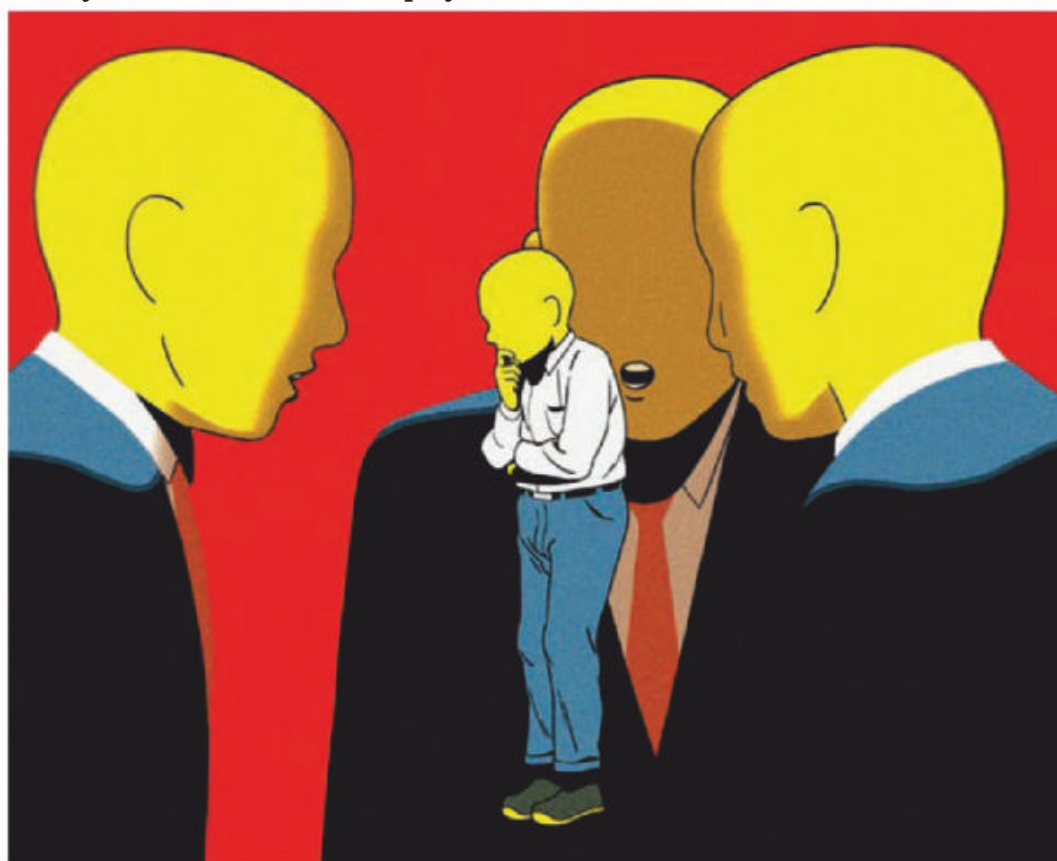
Alabama Securities Commission Director Joe Borg, representing state regulators, wrote to the SEC in August lauding Regulation Best Interest as a good first step. But he also called for major modifications. Among them: Change the name from Best Interest to something more neutral, such as "Broker-Dealer Standard of Conduct," to avoid misleading investors about what they're getting. Borg says he's not surprised some states are moving faster. "This is a hot topic, and the bottom line is that states are going to move when there's political

interest," Borg says. "Personally, I prefer to wait and see what the SEC does."

The SEC declined to comment. Agency critics, led by Democratic presidential candidate Elizabeth Warren, have panned Reg BI. "Wall Street might be excited about a green light to cheat working families, but it's a bad sign for consumers," she wrote in a Bloomberg column last August. Consumer advocates agree. "This is all about a weak and ineffective rebranding of the broker standard as 'best interest,'" says Barbara Roper, director of investor protection for the Consumer Federation of America.

Leading the charge on the state level is New Jersey Governor Phil Murphy, a Goldman Sachs

"Looking out for the interests of clients is not difficult or an unreasonable expectation"



Group Inc. alum. His state's securities bureau has declared it's "considering making it a dishonest or unethical business practice" for a broker to behave like a salesman. It's drafting a state fiduciary standard.

It's unclear how the proposal—which has attracted dozens of forceful comments on both sides—will play out. Norm Politziner, an investment adviser representative in Highland Park, N.J., says his clients have only the foggiest notion that adviser standards are in play, and even he's at a loss about what to expect. "If a client spends part of the year in New Jersey and part of it in Florida, what law applies?" he asks. "It's hard to be compliant with two different agencies writing rules that may be in opposition to each other."

—Neil Weinberg

THE BOTTOM LINE Some states and consumer groups say the SEC's proposal for new "best interest" broker rules is too watered down—or misleadingly labeled.

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● The college admissions scandal presses our “unfairness” button like no other

There’s a much-viewed video on the internet showing how a capuchin monkey reacts when it gets rewarded for a task with a bit of boring cucumber while the capuchin in the next cage gets a grape for the same task. The wronged primate throws the cucumber back at the experimenter in rage and disgust, then reaches through a hole and pounds the counter before slamming the cage’s clear plastic wall with both fists. Unspoken: “Gimme a damn grape, lady.”

Parents of college-bound students are reacting with equally righteous indignation to a new admissions cheating scandal, in which Hollywood celebrities and CEOs are accused of paying bribes to help their kids cut in line to get into top universities. In a March 12 court filing, the federal government said clients paid a combined \$25 million in bribes to sports coaches and college administrators from 2011 to 2018 to get their kids into such schools as Yale, Stanford, the University of California at Los Angeles, and Georgetown.

Unfairness triggers a part of the brain called the anterior insula that causes feelings of contempt or disgust. It’s the part of the brain that saved our ancestors’ lives by telling them not to eat rotten

meat. Judging from the firestorm on social media, Americans seem far more disturbed by this scandal than by the preferential access given to, say, children of alumni or wealthy donors. That might be because people see those breaks as just part of the way the world works. Even if you don’t like it, you can sort of understand why a university would look favorably on an application from a young woman whose parents just gave \$25 million for a new student union. Schools need money. In contrast, there’s no rough justice in this scandal. Those enriched were corrupt officials, not the schools.

Among the parents charged were Gordon Caplan, the co-chairman of the Willkie Farr & Gallagher law firm in New York; Manuel Henriquez, chief executive officer of Hercules Capital; and Douglas Hodge, the former CEO of Pacific Investment Management Co. All three declined to comment. William Singer, the founder of a California-based test prep business said to be at the heart of the scandal, has pleaded guilty.

The manipulations were carried out in the strictest secrecy. One alleged trick was to arrange for a student to take the SAT or the ACT with a corrupt proctor who would fix wrong answers. Another was to get a coach to ask the admissions office to admit a student under an athletic preference—including in cases where the student didn’t even play the coach’s sport. Outrageously, some of the conspirators are accused of photo-shopping pictures of kids into sports scenes to ►

◀ make them look like legitimate athletes.

What makes this scandal possible is that college admissions criteria are opaque and sometimes arbitrary. Some applicants get in because of good grades and high test scores. Others are admitted because the university needs a fullback or a cellist. Others because Mom or Dad is a loyal and generous alum. Still others get in for racial or geographic diversity. There are legitimate arguments for all of these, but the upshot is that it's much easier to cheat when the system is a black box than when admissions are based solely on, say, an (honestly proctored) ACT or SAT.

It's hard not to compare this scandal to the lawsuit accusing Harvard of discriminating against Asian-American applicants, in part by giving them lower personal ratings than students of other races. Students for Fair Admissions, led by activist Edward Blum, wants the university to abandon race as a factor in admissions. In August the Justice Department backed the plaintiffs, saying the use of a "vague personal rating," including "likability" and "human qualities," illegally disadvantages Asian-American applicants by invoking stereotypes. Whether or not you think race should be considered in admissions, it's hard not to sympathize with Asian-Americans who feel they're being told by Harvard that they, as an ethnic group, are less likable.

Those most outraged by the admissions cheating scandal are the ones who applied to, say, Yale and didn't get in and will now forever be convinced that it's because of someone else's bribery or photoshopping. This is the segment of society that Brookings

Institution senior fellow Richard Reeves calls "dream hoarders" in a 2017 book by the same name. Not getting into the Ivy League is a First World problem. Those middle-class and blue-collar Americans who never even applied to an elite school are understandably less wrought up—especially because they, unlike the dream hoarders, have had less reason to believe in the first place that life is fair.

The oddity of all this is that while admission to an Ivy League university or other top school is prized beyond gold itself in one stratum of society, the main reason that grads of the Stanfords and Harvards are successful in later life isn't the arches or the ivy but the fact that they were smarter and harder-working than other students to start with. Stacy Dale of Mathematica Policy Research and Alan Krueger, an economist at Princeton, controlled for hard-to-observe differences in ability in a 2011 paper and found that the difference in earnings of students who went to the most selective schools and those who went to other schools was "indistinguishable from zero."

Then again, the connections made in elite colleges can be extremely valuable, particularly so for students who aren't especially smart or motivated and wouldn't have been admitted on their own merits. For them, cheating may have paid. That's as infuriating to us as it would be to those capuchin monkeys. —*Peter Coy, with Erik Larson, Janelle Lawrence, and Patricia Hurtado*

THE BOTTOM LINE The federal charges brought on March 12 alleging bribery in U.S. college admissions are the latest evidence that the opaque system breeds corruption.

Venezuela Needs Its **Oil** Workers Back

● To rebuild the economy, the opposition must revive production at PDVSA

Reversing Venezuela's plummeting oil production will be a top priority should opposition leader Juan Guaidó succeed in his quest to dislodge the regime of Nicolas Maduro. Guaidó has already appointed a shadow board of directors for state-run oil company Petróleos de Venezuela SA. The hard part will be assembling a corps of experienced industry personnel to help revitalize the company if Guaidó assumes power.

Thousands of PDVSA professional staff left more than a decade ago after being targeted in a political purge. Roughnecks and truck drivers are the latest

to join the exodus, fleeing a country plagued by the world's highest inflation and debilitating food shortages. "The loss of technically competent people is one of the most limiting factors," says Luis Giusti, who resigned as chief executive officer of PDVSA the day before Hugo Chávez took office in 1999 and is an adviser at the Center for Strategic and International Studies in Washington.

PDVSA was once considered one of the most efficiently run state oil companies. But negligence, mismanagement, and graft have hollowed it out. It now pumps at most about 1.5 million barrels a



◀ A government billboard in Maracaibo extols the economic contribution of oil workers

day, down from more than 3 million when Chávez became president. The decline has accelerated in the past couple of years as a result of Trump administration sanctions that restrict Venezuela's ability to tap the U.S. financial markets and that bar imports of its crude.

Luis Salas quit the company last year after 13 years as a rig manager. He now lives in Bogotá, where he supports his family by working odd jobs. Despite his precarious financial situation, he's not ready to rush back. "It's not as easy as it sounds," he says. "Promises and reality are two different things."

The PDVSA diaspora is extensive and global, with former senior executives and highly trained technicians having established new careers and put down roots across Latin America and in the U.S. and Canada. Some landed in the Persian Gulf, where state-owned oil companies are making a push to recruit the holdout talent still left in Caracas. "Every day, you see new Venezuelans coming to Saudi Arabia," says Alejandro Ramirez, who was a financial analyst at PDVSA and is now a financial consultant for Saudi Arabian Oil Co. in Dahanu.

The search for candidates to restaff PDVSA has been going on in fits and starts for well more than a decade. It began in 2003 with mass firings of about 18,000 employees who'd taken part in a two-month walkout to demand early elections to challenge then-President Chávez. The following year, some former employees established an association called Gente del Petróleo (Oil People), which maintains a database of prospective returnees.

There are no reliable data on the numbers of one-time employees who are still in the business. Gente del Petróleo has reached out to several thousand,

says Juan Fernández, a planning and risk director at PDSVA until 2003 who now lives in Miami. "We have been collecting data on people outside Venezuela and speaking to Guaidó's team on ideas on how to best channel the human resources."

Nestor Zerpa, who was pushed out of his job managing a refinery for PDVSA after he joined the anti-Chávez walkout, calculates that the company would need to lure back about 30 percent of its exiled technicians and other professional staff to start rebuilding. "You need experienced personnel teaching the other two-thirds," he says. Zerpa immigrated to Canada in 2005 and now works as a senior adviser at Cnooc Ltd. in Calgary. Starting over in a place where the temperatures often drop below freezing wasn't easy, he says, but the payoff has been substantial. In Canada, "you have your freedom, you have security, you have a good life." Zerpa says that while he may consider returning to his home country to help with the reconstruction effort, it's unlikely he'd remain there permanently.

Guaidó's picks for board members for PDVSA and its U.S. refining arm, Citgo, include industry veterans whose credibility could help attract investment. Even so, the recovery effort would take years along with tens of billions of dollars. "We can't talk about a quick fix," says Luisa Garcia, a 17-year PDVSA veteran who left the company in 2014 and now works in Miami as an independent marketing consultant. "It's not going to be easy, but the last 20 years haven't been easy either." —*Fabiola Zerpa, Michael McDonald, and Michelle Kim, with Robert Tuttle*

THE BOTTOM LINE Tens of thousands of oil workers have left Venezuela since 2003. The opposition is putting out feelers to the diaspora in the hopes of persuading many to come back.

Is China Too Rich To Borrow From The World Bank?

● David Malpass, the bank's likely next chief, calls for a focus on poorer nations

In the summer of 1981, a poor, technologically backward country looking to move up in the world got its first loan from the World Bank: China borrowed \$200 million to modernize its universities so they could churn out more scientists and engineers—a big step for a nation whose average worker earned less in a year than most Americans did in a week.

More than three decades later, China is the world's No. 2 economy, with more than \$3 trillion in foreign-currency reserves and development banks of its own that lend around the world. It's also one of the World Bank's biggest borrowers. But maybe not for long.

China's huge trade surplus with the U.S., along with its plans to muscle into such areas as artificial intelligence, has raised hackles in Washington. President Trump tends to talk about China in zero-sum terms: Its rise is a threat to America. Curtailing World Bank lending to China would fit with the administration's efforts to contain Beijing's economic power.

Even before the trade war, there were experts arguing that it's time for Beijing to graduate from the ranks of World Bank borrowers. Those voices have notably included senior U.S. Treasury Department official David Malpass, the man most likely to become the bank's next president.

In an interview with Bloomberg Television after being nominated by Trump last month, Malpass said the bank should follow through on a plan to cut lending to upper-middle-income countries such as China (others in the bracket that might be affected include Turkey and Brazil), so it could focus more resources on poorer nations.

Malpass has been blunter in the past. In November 2017, he said China has “other resources and access to capital markets” and doesn't need help from development lenders. He has frequently scolded China for failing to live up to its market-reform promises. Late last year, he suggested to U.S. lawmakers that China was trying to make other countries dependent on its largesse

through programs such as its “Belt and Road” initiative, a massive infrastructure plan that aims to revive China's trading links with Central Asia, the Middle East, Africa, and Europe.

One counterargument is that while China is big, it's still not rich. Output per capita is about one-sixth of the U.S.'s in dollar terms and one-third if you measure by purchasing power. It “still has a lot of catch-up to do,” says Bert Hofman, the World Bank's country director for China.

There are financial considerations, too. The bank's biggest fund lends to middle-income countries. That fund typically makes a profit on each loan by borrowing in bond markets at low rates and lending at a small margin. Part of the profits are funneled into the bank's fund for the world's poorest nations, which borrow from the bank at little or no interest. In other words, market-driven loans for countries such as China help the bank meet its lofty goals of reducing extreme poverty around the world.

“The World Bank is a bank, and it needs to be lending profitably to at least some of its borrowers,” says Christopher Kilby, an economics professor at Villanova University. “China serves that role very well.”

Slashing credit to China could also have unintended consequences for the World Bank's efforts to combat global problems such as climate change. And it could leave the bank on the outside looking in, without influence over such major Beijing initiatives as Belt and Road.

The China question cuts to the heart of the debate over what the World Bank should be. It was conceived during World War II to fund the reconstruction of Europe. Headquartered in

● Top World Bank borrowers in the five years through 2017*



▼ World Bank loans are helping combat pollution at Lake Poyang in China's Jiangxi province



◀ Washington, the bank was seen by its biggest shareholder, the U.S., as an instrument of growing American power. Even then, some member countries saw a future in which it would be lending more broadly to help lift nations out of poverty. And that's been the direction it's mostly taken since the 1970s. Still, the tug of war continued, with fiscal conservatives arguing that countries should eventually stand on their own feet. "It really is almost insane to be lending any money to China," says Steve Hanke, a professor of applied economics at Johns Hopkins University who's known Malpass since the two served in the Reagan administration. "Money is fungible," he says. When it makes its own loans to poorer countries, "China's basically recycling World Bank money, and China gets all the credit for it."

As part of a deal that paved the way for a \$13 billion capital increase from its members last year, the World Bank agreed to curb lending to "upper-middle-income" countries. Nations with per capita incomes above roughly \$7,000 are supposed to start the process of "graduating." If they still get loans, it should be to finance "global public goods" that markets can't provide, according to the plan. The idea is that World Bank capital could be harnessed to fight problems that transcend borders.

Yet only 38 percent of World Bank loans to China in the last three years went to public goods such as pollution control, according to a January report by Scott Morris and Gailyn Portelance of the Center for Global Development. The rest went to such areas as transportation and agriculture that critics argue China could easily finance on its own.

World Bank lending to China is already falling—loans approved in the latest fiscal year amounted to \$1.8 billion, from \$2.4 billion the previous year. Under Malpass, there could be a further squeeze. Plans for the bank to invest alongside China in some Belt and Road projects may also be shelved. Still, with other nations pushing back on the bank's board and environmental questions rapidly rising on the list of global concerns, China's graduation could be gradual.

But Morris says there are downsides to forcing China to quit cold turkey, including the risk that the bank will be worse-equipped to tackle the big global problems its members want it to target. "China is the world's largest polluter," he says.
—Andrew Mayeda, with Peter Coy

THE BOTTOM LINE Trump's pick to head the World Bank advocates curbing lending to China. But that could set back the bank's pollution-fighting work and shrink its pool of capital.

Artifact

Swiss Bank Note



The 1,000-franc note makes up 59 percent of the total value of Swiss bills in circulation, according to the country's central bank

Large-denomination currency has become passé in Europe, where 17 out of 19 central banks have stopped issuing 500-euro notes out of concern that they facilitate money laundering, tax evasion, and other criminal activities. Switzerland, a nation that cherishes cash as well as privacy, is bucking the trend: A redesigned 1,000-franc note went into circulation on March 13. The lilac-hued bill is one of the world's most valuable, worth almost \$990 at the current exchange rate.

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Seriously, Folks— Ukraine Is Corrupt

● Comedian Volodymyr Zelenskiy leads in polls as Ukrainians prepare to pick their next president

There's nothing funny about why a comedian is getting a shot at becoming president of Ukraine, a country at war.

In the dramatic revolutions of 2004 and 2014, Ukrainians twice sought to buck a political system in which wealthy oligarchs appeared to take turns milking the state. Both attempts to root out systemic corruption are widely seen as failures, despite a new anti-graft agency and a sweeping bank cleanup.

Faced with candidates who seem to offer the status quo—the near-billionaire incumbent, Petro Poroshenko, and the onetime natural gas mogul and prime minister, Yulia Tymoshenko—voters

appear to be turning to the absurd. Television comic Volodymyr Zelenskiy, whose show *Servant of the People* takes aim at the nation's hated elite, is leading in opinion polls ahead of the March 31 election.

From allegations of politicians being bought to violent attacks on activists and suspect trials, the impact of kleptocracy on Ukraine is hard to overstate. A well-educated nation of 42 million with a fertile landmass the size of France now threatens to displace Moldova as Europe's poorest. Rampant graft has left Ukraine unattractive to investors and vulnerable to Russian manipulation at a time ▶

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◀ of rising tension between Russia and the West. Money from the former Soviet Union allegedly being laundered in European and U.S. banks has attracted international scrutiny.

On March 5 the U.S. ambassador to Kiev called for Ukraine's prosecutor in charge of anticorruption cases to be fired and the system revamped. The demand came after a close associate of the president's was embroiled in an arms embezzlement scandal. Poroshenko has since fired the individual, but the affair has been undermining his election campaign. "It's very difficult to impose, from outside, the fight against corruption when the political elite works against it," says Oleksandr Danylyuk, a former finance minister who helped put anticorruption reforms in place.

Ukraine is ranked 120th of 180 nations in Transparency International's annual corruption perceptions index, tied with Liberia, Malawi, and Mali. All political parties in Ukraine pledge to fight corruption, and Poroshenko has overseen the adoption of more reform legislation than his predecessors. A new 85-page report on anticorruption efforts during Poroshenko's presidency concludes that electronic tax collection, anti-money-laundering measures, and changes in the natural gas industry plugged a \$6 billion or so hole in Ukraine's budget, even if "the fight against corruption has only just begun."

Nowhere is the human cost of corruption more apparent than in Odessa, the port city on Ukraine's Black Sea coast. The last year and a half has seen an unprecedented spate of attacks on anticorruption campaigners. One was stabbed and another shot. Others were severely beaten. In August lawyer Mikhail Kuzakon and journalist Grigory Kozma narrowly escaped being crushed when a truck plowed into their stationary car.

All the victims had sought to expose allegedly corrupt deals made or approved by local authorities, headed by Mayor Gennadiy Trukhanov. Currently on trial for allegedly embezzling \$6 million from the public coffers in the privatization of a building, he denies any wrongdoing. "It's theater," Kuzakon says. "If it were profitable to Kiev to convict Trukhanov, it would already have happened."

The case against Trukhanov, Poroshenko's office wrote in a statement, is evidence of new and independent anticorruption institutions at work. Accusations to the contrary were politically motivated, his office said. It also accused Danylyuk of abandoning reform to work for Zelenskiy, who's supported by Igor Kolomoisky, a powerful oligarch anxious to recover assets lost in the financial sector cleanup, the statement said.

The best hope for Ukraine, says Vadim

Morokhovsky, the 47-year-old chairman of Odessa-based Bank Vostok, is that there are now more young voters who never knew the Soviet Union and don't see corruption as an inevitable part of life. "You can't buy them with potatoes," he says.

Social media such as Facebook and Instagram are eating away at the control over information and election campaigns that Ukraine's business clans exercise through their domination of the press. That shift helps explain why the electorate is becoming more fragmented and less predictable, according to Morokhovsky.

Zelenskiy, 41, is a product of that change. The comedian, who also runs a production business with distribution across the former Soviet bloc, has said he might hire Danylyuk and other reformers if he gets to form a government. The latest polls give him a lead of between 5 and 10 percentage points over Poroshenko and Tymoshenko, though anything can happen. If, as expected, no one candidate wins a majority, the two that score highest will compete in a runoff in April.

Zelenskiy's not the first European comedian to show political ambitions: Italy's Beppe Grillo, once a TV star, is a co-founder of the right-wing Five Star Movement. But should Zelenskiy win, life would be imitating art. In his show he plays a history teacher pushed by chance into the presidency. In one episode he dreams of mowing down legislators in parliament with a machine gun in each hand.

In reality, Zelenskiy says he would work with the International Monetary Fund and introduce a capital amnesty under which businesspeople could legitimize hidden assets in exchange for paying a 5 percent tax. He also pledges to strip lawmakers, judges, and the president of their immunity from prosecution, and to make the courts free from political interference.

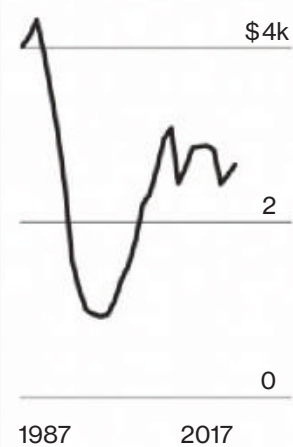
Savva Libkin, who owns eight restaurants in Odessa and Kiev, will take some convincing. He sees oligarchs with vested interests in the current system behind all three main candidates. Zelenskiy's show airs on a channel owned by Kolomoisky, who's at odds with Poroshenko. Zelenskiy and Kolomoisky deny any political or financial ties beyond the TV contract.

"I was born in a corrupt hospital, the nurse who delivered me was corrupt, and the gravedigger who buries me will be corrupt," says Libkin. "This is a disease like AIDS that has mercy for no one, and the people who are fighting it stink of it."

—*Marc Champion and Daryna Krasnolutska*

THE BOTTOM LINE Corruption has weakened Ukraine's economy and led to widespread disillusionment. While an outsider is currently leading in presidential polls, some predict more of the same.

● Ukraine's GDP per capita in constant 2010 U.S. dollars



"The nurse who delivered me was corrupt, and the gravedigger who buries me will be corrupt"

The Most Hackable Election System in the U.S. Will Probably Stay That Way

● Georgia lawmakers side with disability advocates over cybersecurity professionals

Lou Ann Blake took the microphone in a crowded auditorium near Macon, Ga., last August and articulated a position that puts her at odds with almost every cybersecurity professional in the U.S.

An election accessibility director for the National Federation of the Blind, Blake was testifying before a committee formed by then-Georgia Secretary of State Brian Kemp to recommend how to replace the state's computerized voting equipment, which cyber experts have called the most hackable in the country. Georgia shouldn't adopt the paper ballots—which have to be filled out by hand—pushed by computer experts and good government groups, Blake said, because the blind can't use them. And if the blind can't use them, neither should anyone else.

Her statements were a crisp summary of the NFB's position. Over the next six months, Georgia politicians used them to sell the state on a pricey system of computerized voting machinery. "We are going with the most secure system we can, under the ADA," Republican state Representative Barry Fleming told lawmakers, bringing the Americans with Disabilities Act to bear on Blake's comments.

Passed in 1990, the law protects access to state and local government services for the disabled. But neither the ADA nor a subsequent federal law extending its protections to polling places requires a universal system of identical voting machines, says Susannah Goodman, director of election security for the watchdog group Common Cause. "There's nothing in the federal law that says everyone has to vote on the same equipment," she says.

The conflict between disability and security advocates dates to the 2000s, when the country began replacing voting equipment thanks to millions in federal dollars made available by the 2002 Help America Vote Act. This year, with governments across the U.S. tapping more funding made available under HAVA to buy more-secure voting machinery, there's a new sense of urgency on both sides.

Election integrity advocates argue that

computerized systems, no matter how well-designed, are too easy to hack. By their logic, hand-marked paper ballots are the safest way to vote because they provide the most reliable record of a voter's intent and enable accurate audits. Seventy percent of U.S. voters currently vote this way, recording their choices in pen and then feeding the paper into a computerized scanner, according to the election security advocacy group Verified Voting. These polling places typically have computer-assisted voting machines on hand for the disabled.

Blake and other disability advocates say forcing blind and sighted voters to use separate systems constitutes a privacy violation, since ballots marked by most of the computerized ballot casters on the market look different than those marked by hand. Poll workers may also delay setting them up until needed, creating a longer wait, says NFB



spokesman Chris Danielsen. Advocacy groups don't want the disabled "to be singled out—I get that," says Susan Greenhalgh, the National Election Defense Coalition's policy director. "But that's akin to saying that because some people can't walk up stairs, now everybody has to use the elevator." ►

▲ Early midterm voting in Atlanta in October 2018

◀ Georgia's 17-year-old voting system lacks an auditable paper trail and is considered especially vulnerable because the same machines are deployed in every precinct across the state. A federal lawsuit last year aimed to force the state to abandon them before November's midterm elections—and while the judge in the case declined to order their immediate replacement, her ruling acknowledged the constitutional significance of secure elections.

Because state law mandates that Georgia polling places use this equipment, a new law is needed to replace it. Kemp, who's now the state's Republican governor, convened his advisory committee after a previous effort at drafting legislation failed, with lobbyists for vendors and election integrity advocates prompting a stalemate. The commission's 18 members included local election officials, legislators, and one cybersecurity expert, Wenke Lee, a computer science professor and co-director of the Institute for Privacy and Security at Georgia Institute of Technology.

At a final meeting in December, Lee urged the group to endorse hand-marked ballots while keeping voting computers for the disabled, saying no other option was justifiable. "From a cybersecurity point of view, that's the best available solution," he said.

The commission ignored him, recommending computerized ballot markers for use statewide in January. The \$150 million proposal—which will be the largest ever election vendor contract in the U.S.—passed the Georgia House in late February. It passed the state Senate on March 13 in a party-line vote, and Kemp is all but certain to sign the bill into law.

The approved machines create a printed paper record that voters verify, but use computers to do it, adding both cost and risk, says Rich DeMillo, a cybersecurity expert at Georgia Institute of Technology: "You still have a hackable computer between you and your vote." —*Margaret Newkirk*

THE BOTTOM LINE The voting machines Georgia favors are more secure than the state's current equipment, but any computer is vulnerable, say election security advocates.

China's Bummed-Out Bureaucrats

- Six years after Xi Jinping took power, many civil servants are fed up with the increase in scrutiny

For centuries, getting a job as a government bureaucrat has been the path to power and relative wealth in China. It also led, in more recent times, to bureaucratic sclerosis and corruption. After President Xi Jinping took office in 2013, he started clamping down on graft, absenteeism, and other abuses. He also began curbing dissent, as he moved to restore the Communist Party's control and stamp his own authority on all aspects of the nation's development.

Interviews with eight officials in China's ministries and regional governments show growing dissatisfaction as the party tightens restrictions on its 7 million civil servants, traditionally known as cadres. All these officials either recently quit or plan to do so, and all requested anonymity to speak about sensitive matters.

In the old days, many senior officials would rarely turn up for work—while still collecting

monthly paychecks and enjoying perks such as privileged health-care benefits. Those interviewed said such abuses have become rare. But increased inspections and oversight have taken a toll. One senior government official in his early 50s decided to apply for early retirement because his heavy workload sometimes required him to sleep in his office on the tiled floor amid crawling cockroaches, using newspapers for sheets. A 29-year-old civil servant in a provincial capital is rethinking his career as housing prices soar beyond what he can hope to afford on his \$522 monthly salary. And another official quit to join a private company after 10 years of service, disillusioned by increasing scrutiny from the party's disciplinary watchdog, which combs party officials' reports looking for "malpractice" or "inaction."

Since taking control of the party in 2012, Xi has made himself into China's most powerful leader

"A major engine of the economic development is lost"

since Mao Zedong. He's put himself at the center of Chinese communist thought, heading dozens of policy committees and enshrining his signature policies in the country's constitution. The abolition of term limits, which Xi pushed for and won in last year's National People's Congress, and efforts to consolidate his personal authority run counter to the country's meritocratic tradition, says Suisheng Zhao, executive director of the Center for China-U.S. Cooperation at the University of Denver's Graduate School of International Studies. "Since Deng Xiaoping, the Communist Party of China tried to institutionalize a system that grooms and assigns young and well-educated cadres to key positions," Zhao says, but that system is breaking down.

Many of those interviewed said they felt political performance had become more important for civil servants than ability, and officials were often uncertain about what actions would be deemed disloyal from one month to the next. "Bureaucrats don't dare to do things, as they worry about making mistakes," Zhao says. The State Council Information Office didn't respond to a fax requesting comment.

A report from China's top antigraft body last year detailed how cadres up and down the government, from localities to state-run enterprises, frequently failed to follow party instructions or demonstrate sufficient loyalty to Xi. At a meeting in January, Xi warned top leaders of "sharp and serious dangers of slackness in spirit" within the party. A document issued by the party's Central Committee on Jan. 31 urged leaders "to veto cadres who are politically incompetent and resolutely replace those who are in a leading position." Vetoed cadres won't be eligible for promotions, stalling their careers.

For some government officials, the most galling problem is the discrepancy in pay between public and private enterprise. In the past, senior positions were well-compensated compared with those of most workers outside the administration. But the ascent of the business community has tipped the balance, as entrepreneurs have redefined what it means to be wealthy in China.

One official with three college degrees earned \$1,600 a month after working for 12 years in a ministry. Another bureaucrat who quit her position last autumn to join a finance company said that she didn't mind working overtime and weekends in her former job and that the \$1,100 monthly salary without a raise for years didn't bother her because her family is well-off. But the political pressure and the uncertainty over what would be considered a mistake got to her. She cited colleagues who were scared to dine out during the holiday season—a traditional time for families to hold celebratory dinners—after

a party clampdown on gift-giving and lavish entertainment that began when Xi took office and continues today.

Foreign businesses say Xi's anticorruption campaign has made doing business in China simpler, even if it's slowed the bureaucracy. In a 2017 survey by the European Union Chamber of Commerce, only 14 percent of respondents listed corruption as one of their three greatest concerns about doing business in China, down from 26 percent in 2014.

There's no official tally of the number of bureaucrats who've quit. In October 2017, Qi Yu, then vice minister of the party's Organization Department, said only about 10,000 civil servants resign each year, less than a quarter of 1 percent of the nationwide total. The Organization Department didn't reply to a faxed inquiry asking for updated figures.

One sign that the government may be concerned about a talent drain was the introduction in 2017 of new rules for civil servants who quit. One prohibits officials at the division chief level or above from working for regulated companies or for-profit organizations. The penalty is a heavy fine. "Restricting public servants from joining a regulated company within a certain time frame is an international practice," Zhao says. "But combining with other restrictions on political and ideological fronts, the bureaucracy system is losing charm."

Confucianism, the ruling ideology in ancient China, advocates serving the emperor and the country as the ultimate honor for an intellectual. Not as many people are heeding the call. About 1.4 million applicants took the National Civil Service Exam in December, the lowest number in five years, according to data released by the State Administration of Civil Service.

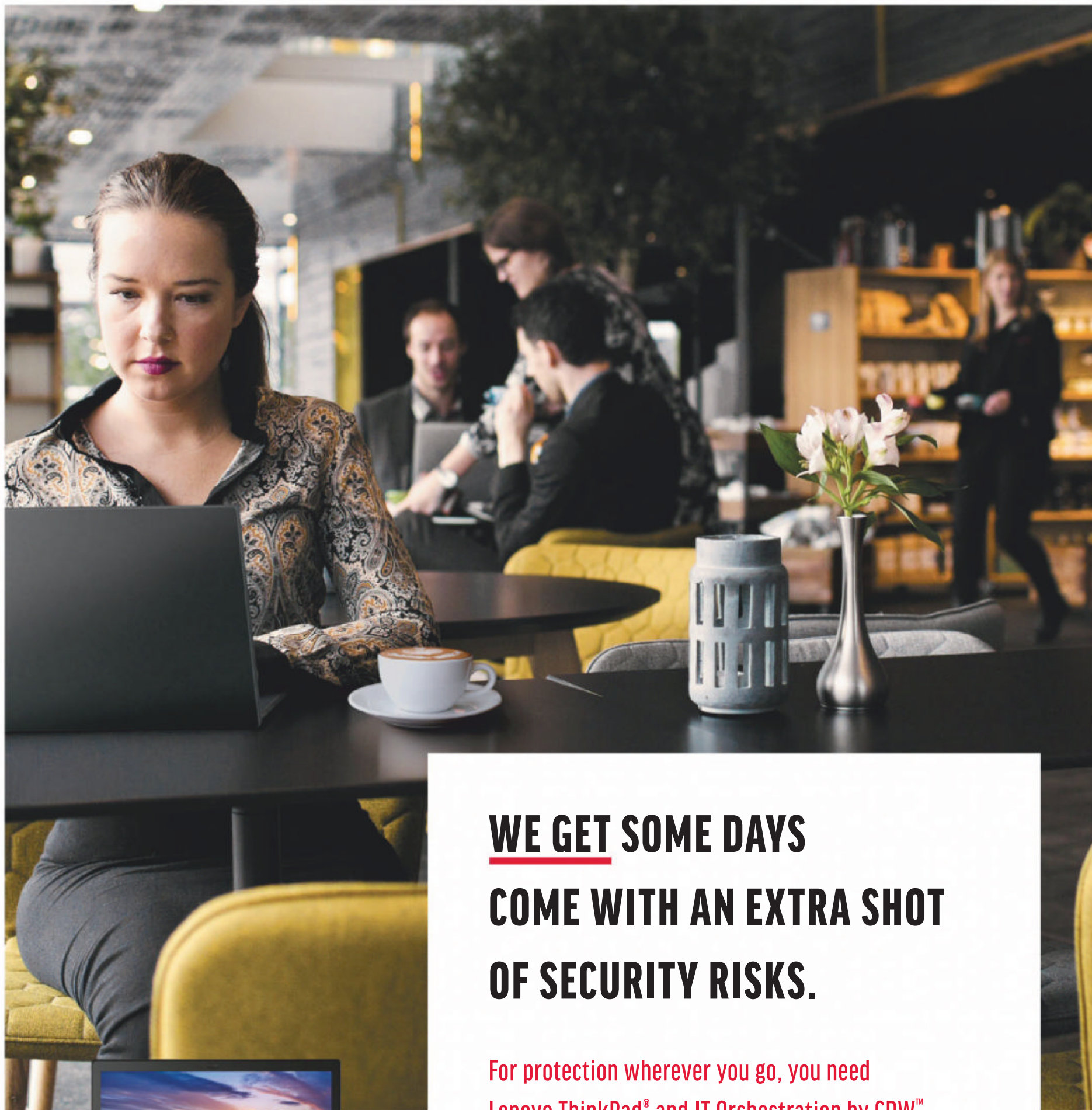
The document issued by the Central Committee in January vowed to implement an education program to develop young cadres' sense of purpose. It called for the cultivation of "socialist builders and successors who have a firm communist belief and a higher Marxist theoretical accomplishment."

Zhang Jian, an associate government professor at Peking University, says that for most of the past 40 years, "the Chinese bureaucracy was tied to the party center by a relatively long leash." Over the past six years, increased central control has led to a decrease in individual motivation, and "a major engine of the economic development is lost," he says. "This is bad for China in the long run."
—*Bloomberg News*

THE BOTTOM LINE While anticorruption efforts have made China a safer place to do business, they've come at the expense of some of the country's top talent.

● The number of people taking the National Civil Service Exam last year hit a five-year low of

1.4m



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Big Data

A Bumper Crop Of Information

Seed and fertilizer makers gather data from thousands of farms—and sell it back to growers



For six generations, Ben Riensche's family has tended corn and soybeans outside Jesup, a town of 2,500 on the windswept plains of eastern Iowa. But today he's harvesting a valuable new crop from his 12,000 acres: information. "The future is simply data analytics and tech," says Riensche, who still has his grandfather's handwritten notebooks containing everything from the bushels of corn he brought in to the number of eggs the chickens laid. In the half-dozen years since he signed up for a data analysis service from Climate Corp., a unit of Bayer AG, Riensche has reduced the seed he uses by 6 percent and the fertilizer by 11 percent while growing his best crops ever. "Before, there was no secret sauce other than just keeping notes and making field

observations," he says. "Now we have all these digital tools."

Information collected by farmers—yields, fertilizer use, crop rotation, rainfall, and dozens of other data points—is catnip to the likes of Bayer, Syngenta, DowDuPont, and BASF. The companies feed it into software that predicts combinations of seeds, fertilizers, and sprays to maximize yields. That can boost sales of their products while also padding the bottom line from subscription fees farmers pay for recommendations on what to sow and when to spray. "I can't tell you how many times I've gone to a farmer's machine shed and all their yield data for the past 15 years is sitting in spiral notebooks on the shelves," says Mike Stern, who heads Climate Corp. He says Bayer can digitize that material and combine it with historical information, then sell it back to farmers. "Data is the new currency," Stern says.

The digital transformation of farming isn't new. In the 1980s, soil data was recorded on six-inch floppy disks to help calculate fertilizer needs, and since the advent of the internet, companies have created ever-larger databases to improve recommendations. Today, the trend is accelerating as growers get feeds directly to tablet computers in their tractors and tap technologies such as crop-spraying drones to maximize yield on every square foot. As more farmers supply data in exchange for tailored advice, the computers combine that with material from other farms, then apply artificial intelligence to make better predictions. "It's a virtuous cycle, as expanding creates more data and improves algorithms, leading to better ►

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SOLUTIONS

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March 18, 2019

Edited by
Dimitra Kessenides
and David Rocks

◀ recommendations to farmers and gaining more data,” says Sanford C. Bernstein analyst Gunther Zechmann.

By the mid-'20s, the digital agriculture market is expected to be worth billions of dollars a year. But as the companies assemble their databases, subscription fees—\$1 and up per acre—don't yet cover the cost of running the systems. The business “is definitely commercially viable, but part of it is also building for the future, because going forward this is more and more about data mining,” says Hans-Ulrich Engel, chief financial officer at BASF SE. “Over time you'll see how to price products and services. The market is still moving.”

In the race to get ahead, the companies are amassing data on thousands of farms. After its \$66 billion takeover of Monsanto, Bayer leads the way with access to information from 160 million acres. BASF, Syngenta, and DowDuPont are battling for second place, though it's hard to say who's ahead, as they assess their acreage differently. “While we're building these models, the more data the better,” says Dan Burdett, who spearheads the digital efforts of Syngenta, which is expanding rapidly after China National Chemical Corp. bought the Swiss company last year for \$47 billion. “We're trying to establish the history and the baseline and do analytics.”

As the giants lock down contracts with farmers who tend millions of acres, smaller players say they can provide higher-value services to a more limited market. KWS Saat SE, which started selling seeds to German farmers in 1856, offers high-resolution satellite images of fields to spot when, say, barley has developed just the shade of yellow that indicates it's ready to harvest. And it's working on projects such as data-gathering robots that can spring across uneven, muddy fields to analyze crops and give early warning of trouble. “If a plant is in distress, it puts all its effort into its top leaves facing up toward the sun,” says Lorelei Davis, who oversees technology development at KWS. “That's what you'll see with a drone or a satellite, but below those leaves is where you see the problems.”

Riensche expects that by the time his children take over the farm, the data revolution will have transformed the business. With consumers demanding transparency in the food chain, information on how a crop was grown and its environmental impact will be enormously valuable. And if millers or brewers want corn or barley that's a bit more sun-kissed or has a higher starch content, they could order it from a farmer at the start of the season and monitor its progress as it grows. “I've got buyers for my crop if I can provide them with this information,” Riensche says. With the right technology, “I can provide the whole story of how that crop was raised.” —*Andrew Noel*

THE BOTTOM LINE Companies sell software that recommends seeds, fertilizers, and sprays to maximize yields, boosting sales of their products while padding profits with subscription fees.

Undersea Cables, Underwater No More

Surging data has made fiber hot again, but this time internet giants are footing the bill

During the 1990s dot-com boom, phone companies spent more than \$20 billion laying undersea fiber-optic cables from New York to London, through the Mediterranean, across the Indian and Pacific Oceans, and beyond. They were preparing for an expected explosion in internet traffic, but when the bubble burst at the turn of the millennium, operators unloaded cables for pennies on the dollar. That fiasco discouraged investment in the industry for the better part of a decade. Now, with data traffic surging—videos on Netflix and YouTube, songs from Spotify and Pandora, innumerable posts on Twitter and Facebook—the excess capacity has been absorbed, sparking another investment boom, with more cable laid in 2018 than in any year in almost two decades. The industry “is as strong as it's been since they all went bust,” says Tim Stronge, vice president for research at telecom consultancy TeleGeography. “There's an awful lot of cable going in.”

The leaders of today's boom are two of the biggest generators of data traffic: Google and Facebook. Internet companies are behind about four-fifths of transatlantic cable investment planned for 2018-20, up from less than 20 percent in the three years through 2017, according to TeleGeography. Google has become “by far the biggest investor” in submarine cables, even taking full ownership of two of them—a reflection of the vast amounts of data the company transmits, says Mike Conradi, a lawyer at DLA Piper in London who's been working on undersea fiber deals since 1999. Content companies “can make or break these cables.”

The digital giants, also including Microsoft Inc. and

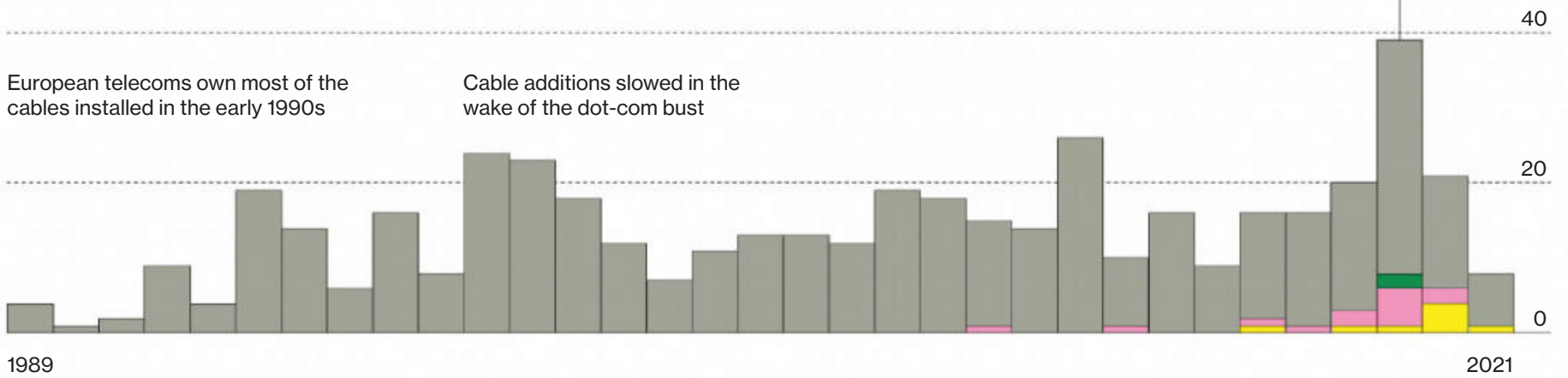


Testing the Waters

Number of undersea internet cables added, by ownership*

■ Google ■ Facebook ■ Both ■ Other

More than 100,000 kilometers of cables have been added or are planned for this year—enough to cover the circumference of the Earth twice



*OWNERSHIP INDICATES COMPANY IS WHOLE OR PART OWNER; FIGURES INCLUDE ACTIVE, PLANNED, OR MID-ASSEMBLY CABLES AS OF FEB. 15. DATA: TELEGEOGRAPHY

Amazon.com Inc., have reshaped the way the industry works. Before the newcomers arrived, phone companies typically formed single-purpose businesses to build cables, primarily from England to the U.S., which mostly connected old-fashioned voice calls and a smattering of data traffic. Today the internet companies can dictate where the cables land, bringing them out of the water close to their data centers. And they can tweak the structure of the lines, which typically run about \$200 million for a transatlantic link, without waiting for partners to approve changes. “There are geographical pinch points in a global network—based on the reality of populations, oceans, and geography—that can’t be avoided, just planned and engineered around,” says Jayne Stowell, a leader of Google’s cable team.

New regional players are also entering the business, particularly from China. Huawei Technologies Co. has a joint venture with British company Global Marine Systems, though concerns about the Chinese government’s influence over Huawei have kept it from being hired to lay transatlantic links. But the company has worked on major projects including a 9,000-mile line that connects Britain to South Africa and 12 other countries along the way, and a 3,700-mile route from Cameroon to Brazil. Facebook and Amazon Web Services are teaming up with China Mobile to link San Francisco to Hong Kong and Singapore. A group of companies from South Africa, Egypt, and Saudi Arabia are working on a line connecting those countries.

Technological advances, climate change, and shifting political considerations are opening routes, including previously inaccessible passages through the Arctic. Those links could shave a few milliseconds off the time it takes to connect London with Tokyo or Shanghai. That can mean the difference between profit and loss in computer-assisted stock trading, and it could accelerate new applications such as driverless vehicles that require ultrafast communication.

Speed isn’t always the primary concern: At least two new cables will snake around the Cape of Good Hope in South Africa, adding a bit of time to communications but avoiding a bottleneck at the Suez Canal. More than a dozen lines crowd the seabed there, making it a potential target for terrorists seeking to shut down global communications but also creating the risk that a single dropped anchor could take out a big chunk of capacity.

Perhaps the most plausible of the Arctic projects is backed by the Finnish government-owned company Cinia Group Oy. The plan is to connect Scandinavia with Japan via an 11,000-mile, \$600 million cable. Skeptics say the line risks being shut down or tapped by Russia, through whose waters it will inevitably pass, and that it might take months to repair a breakage when the ocean is icebound during winter. Jukka-Pekka Joensuu, an adviser to Cinia, says those fears are overblown and that the project’s leaders will make no compromises on security. “Bluntly, it has to be as cybersecure to Americans as it is to the Russians, Chinese, Japanese, or Europeans,” Joensuu says.

Given that the companies building the cables today are the same ones that will use most of their capacity, there’s less risk of a collapse than there was two decades ago. But an unforeseen technology that multiplies the volume of data cables can carry—not unheard of in the industry—could put many investments underwater again. And even if history isn’t repeated on transatlantic routes, the danger could simply be transferred south, says Nigel Bayliff, chief executive officer of Aqua Comms, a cable-laying operation that works with Silicon Valley companies. At least a half-dozen routes from the U.S. to Brazil have recently been completed, “a massive overbuild,” he says. “There is nowhere near the volume to justify even two of the six.” —*Thomas Seal*

THE BOTTOM LINE New technologies and climate change are opening up routes through the Arctic that could cut the time it takes to zap data between the financial capitals of Europe and Asia.

Every Move You Make

WeWork will be watching you

Of the company swag worn by WeWork employees, one T-shirt slogan says a lot about where the shared workspace business is headed: “bldgs=data.”

It's hardly a surprise that WeWork Cos. wants to make money collecting and analyzing information about how people move and operate within offices. In the past year it's pushed hard on that front, acquiring Teem, a maker of software that captures conference room bookings. In February, WeWork bought Euclid, a service that tracks smartphones in retail spaces. WeWork also is testing several types of sensors, including thermal and motion detectors and Bluetooth check-ins. The tools help analyze how workers intend to use a space vs. how they actually use it, according to Shiva Rajaraman, WeWork's chief product officer. It's like “Google Analytics for space,” he likes to say.

WeWork is testing the tools not in its co-working locations but with its own employees in San Francisco and New York. (Tests of Euclid are in the planning phase.) It also has run a pilot for several big clients, using the data gleaned to help them make decisions about redesign, building projects, and how to better manage existing offices. One New York law firm wondered if it needed more conference room space. WeWork's study included placing battery-powered thermal sensors under conference room tables to measure how many pairs of legs were present and for how long. Its finding: Make conference rooms smaller since they're rarely full. When a New Jersey consulting company wanted more employees in the office on Fridays, WeWork analyzed a year's worth of badge swipe data. The answer: Encourage partners to show up. When they did, others followed, says Liz Burow, WeWork's head of workplace strategy.

WeWork, which was last valued at \$47 billion and operates in 32 countries, does consulting work for Samsung, UBS, and others through its “Powered by We” branch. The office space data collection and analysis is part of an effort to expand the consulting services, Burow says, and help “humanize the workplace experience” by relying more on data and less on intuition. “We like to say it's data in and wisdom out,” she says.

Collected data are anonymized and secure, WeWork's Rajaraman says, but privacy advocates say they're concerned about the consequences. “The first intended use of a data set is not the only way a data set ends up being used,” says Michelle Miller, co-founder of worker organization platform Coworker.org and co-author of a recent report on how data mining is migrating to the workplace. Also, anonymous data streams could still be traced to a person who spends long stretches of time in particular locations, says Jacob Snow, a technology and civil rights



attorney for the ACLU. “The devil is in the details,” he says. “It's important to think through how information can be combined with other information.”

Rajaraman says the efforts are a way to explore how spaces are used at a mass scale, adding, “We want to defend privacy as well.” Teem's room-booking data captures who organizes meetings and who gets invited. “Once you have this, you start to develop a graph of all the connections between people,” he says. He wants to eliminate regularly scheduled “zombie meetings” that no one attends. Teem's information is even more powerful when used with other data: “If we know someone's seating chart, we can start to optimize which rooms are available based on how long it takes you to get to the room,” Rajaraman says.

He's also excited about Euclid's technology, which tracks individual phones through a MAC address, a unique identifier used to locate available Wi-Fi networks. “We can discard the individual identity of the device,” he says. “We just know there are 20 devices in the room. Usually those devices map effectively to people.”

Euclid, founded in 2010, has confronted concerns about privacy. Some shops, such as Philz Coffee Inc., the San Francisco coffee house chain, stopped using the service after customers complained it was invasive. Rajaraman says WeWork wants to make it easy for people to opt out of Euclid's tracking while also retaining the data's benefits. The data can help measure the demand for private booths for making phone calls, for example. “Over the weekend there might be a new phone booth waiting for you,” he says, and the data is the only way to get there. “We don't know unless we analyze the situation.” —*Ellen Huet*

THE BOTTOM LINE WeWork is acquiring businesses, such as conference room tracking software maker Teem, and developing tools to help companies optimize their office space.



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ONE YEAR AFTER THE CAMBRIDGE ANALYTICA SCANDAL, FACEBOOK SAYS IT REALLY CARES. IS THAT ENOUGH?
BY SARAH FRIER

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ast year, a Facebook user in Sri Lanka posted an angry message to the social network. “Kill all the Muslim babies without sparing even an infant,” the person wrote in Sinhala, the language of the country’s Buddhist majority. “F---ing dogs!”

The post went up early in 2018, in white text and on one of the playful pink and purple backgrounds that Facebook Inc. began

offering in 2016 to encourage its users to share more with one another. The sentiment about killing Muslims got 30 likes before someone else found it troubling enough to click the “give feedback” button instead. The whistleblower selected the option for “hate speech,” one of nine possible categories for objectionable content on Facebook.

For years nonprofits in Sri Lanka have warned that Facebook posts are playing a role in escalating ethnic tensions between Sinhalese Buddhists and Tamil Muslims, but the company had ignored them. It took six days for Facebook to respond to the hate speech report. “Thanks for the feedback,” the company told the whistleblower, who posted the response to Twitter. The content, Facebook continued, “doesn’t go against one of our specific Community Standards.”

The post stayed online, part of a wave of calls for violence against Muslims that flooded the network last year. False rumors circulated widely on Facebook claiming Muslims were putting sterilization pills in Buddhists’ food. In late February 2018 a mob attacked a Muslim restaurant owner in Ampara, a small town in eastern Sri Lanka. He survived, but there were more riots in the midsize city of Kandy the following week, resulting in two deaths before the government stepped in, taking measures that included ordering Facebook offline for three days.

The shutdown got the company’s attention. It appointed Jessica Leinwand, a lawyer who served in the Obama White House, to figure out what had gone wrong. Her conclusion: Facebook needed to rethink its permissive attitude toward misinformation. Before the riots in Sri Lanka, the company had tolerated fake news and misinformation as a matter of policy. “There are real concerns with a private company determining truth or falsity,” Leinwand says, summing up the thinking.

But as she began looking into what had happened in Sri Lanka, Leinwand realized the policy needed a caveat. Starting that summer, Facebook would remove certain posts in some high-risk countries, including Sri Lanka, but only if they were reported by local nonprofits and would lead to “imminent violence.” When Facebook saw a similar string of sterilization rumors in June, the new process seemed to work. That, says Leinwand, was “personally gratifying”—a sign that Facebook was capable of policing its platform.

But is it? It’s been almost exactly a year since news broke that Facebook had allowed the personal data of tens of

millions of users to be shared with Cambridge Analytica, a consulting company affiliated with Donald Trump’s 2016 presidential campaign. Privacy breaches are hardly as serious as ethnic violence, but the ordeal did mark a palpable shift in public awareness about Facebook’s immense influence. Plus, it followed a familiar pattern: Facebook knew about the slip-up, ignored it for years, and, when exposed, tried to downplay it with a handy phrase that Chief Executive Officer Mark Zuckerberg repeated ad nauseam in his April congressional hearings: “We are taking a broader view of our responsibility.” He struck a similar note with a 3,000-word blog post in early March that promised the company would focus on private communications, attempting to solve Facebook’s trust problem while acknowledging that the company’s apps still contain “terrible things like child exploitation, terrorism, and extortion.”

If Facebook wants to stop those things, it will have to get a better handle on its 2.7 billion users, whose content powers its wildly profitable advertising engine. The company’s business depends on sifting through that content and showing users posts they’re apt to like, which has often had the side effect of amplifying fake news and extremism. Facebook made Leinwand and other executives available for interviews with *Bloomberg Businessweek* to argue that it’s making progress.

Unfortunately, the reporting system they described, which relies on low-wage human moderators and software, remains slow and under-resourced. Facebook could afford to pay its moderators more money, or hire more of them, or place much more stringent rules on what users can post—but any of those things would hurt the company’s profits and revenue. Instead, it’s adopted a reactive posture, attempting to make rules after problems have appeared. The rules are helping, but critics say Facebook needs to be much more proactive.

“The whole concept that you’re going to find things and fix them after they’ve gone into the system is flawed—it’s mathematically impossible,” says Roger McNamee, one of Facebook’s early investors and, now, its loudest critic. McNamee, who recently published a book titled *Zucked*, argues that because the company’s ability to offer personalized advertising is dependent on collecting and processing huge quantities of user data, it has a strong disincentive to limit questionable content.

**“THE WAY THEY’RE
LOOKING AT THIS,
IT’S JUST TO AVOID
FIXING PROBLEMS
INHERENT WITH THE
BUSINESS MODEL”**

“The way they’re looking at this, it’s just to avoid fixing problems inherent with the business model,” he says.

Today, Facebook is governed by a 27-page document called Community Standards. Posted publicly for the first time in 2018, the rules specify, for instance, that instructions for making explosives aren’t allowed unless they’re for scientific or educational purposes. Images of “visible anuses” and “fully nude closeups of buttocks,” likewise, are forbidden, unless they’re superimposed onto a public figure, in which case they’re permitted as commentary.

The standards can seem comically absurd in their specificity. But, Facebook executives say, they’re an earnest effort to systematically address the worst of the site in a way that’s scalable. This means rules that are general enough to apply anywhere in the world—and are clear enough that a low-paid worker in one of Facebook’s content-scanning hubs in the Philippines, Ireland, and elsewhere, can decide within seconds what to do with a flagged post. The working conditions for the 15,000 employees and contractors who do this for Facebook have attracted controversy. In February the *Verge* reported that U.S. moderators make only \$28,800 a year while being asked regularly to view images and videos that contain graphic violence, porn, and hate speech. Some suffer from post-traumatic stress disorder. Facebook responded that it’s conducting an audit of its contract-work providers and that it will keep in closer contact with them to uphold higher standards and pay a living wage.

Zuckerberg has said that artificial intelligence algorithms, which the company already uses to identify nudity and terrorist content, will eventually handle most of this sorting. But at the moment, even the most sophisticated AI software struggles in categories in which context matters. “Hate speech is one of those areas,” says Monika Bickert, Facebook’s head of global policy management, in a June 2018 interview at company headquarters. “So are bullying and harassment.”

On the day of the interview, Bickert was managing Facebook’s response to the mass shooting the day before at the *Capital Gazette* in Annapolis, Md. While the massacre was happening, Bickert instructed content reviewers to look out for posts praising the gunman and to block opportunists creating fake profiles in the names of the shooter or victims, five of whom died. Later her team took down the shooter’s profile and turned victims’ pages into what the company calls “memorialized accounts,” which are identical to



BICKERT

regular Facebook pages but place the word “remembering” above the deceased person’s name.

Crises such as this happen weekly. “It’s not just shootings,” Bickert says. “It might be that a plane has crashed, and we’re waiting to find out who was on the plane and whether it was a terror attack. There may be a protest, and people are alleged to have been injured.”

And these are the easy cases, where the lines between good and evil are clear and Facebook has developed a formula for responding. On her laptop, Bickert pulls up a slide presentation from a meeting of the company’s Community Standards group, which gathers every other Thursday morning to come up with new rules. As many as 80 employees participate in the discussions, either in person or virtually. The slides show that, on a Thursday last year, the team discussed what to do with #MeToo posts created by women who named their assailants. If the posts were untrue, they could be construed as harassment of innocent men. In the same meeting, the company evaluated viral stunts that younger users attempt, such as the “condom-snorting challenge,” which, with apologies, involves snorting a lubricated prophylactic up a nostril and pulling it out through the mouth. There ►

FB STOCK: POST-SCANDAL

◀ are dozens of challenges such as this—the chile pepper challenge, the Tide Pod challenge, and so on—that young people do (or pretend to do) to get views. If these stunts can hurt people, should Facebook stop people from promoting them?

In December, after months of discussion, Facebook added new rules. #MeToo accusations are OK, as long as they don't encourage retaliation. Challenges are also fine, as long as they don't encourage bodily harm, which would seem to put condom snorting in a gray area. "None of these issues are black and white," Bickert says.

In congressional testimony and elsewhere, Facebook has deployed a practiced set of responses to criticism about its content decisions. If interrogated about something on the site that was already forbidden by the Community Standards, executives will reassure the public that such content is "not allowed" or that there is "no place" for it. If there's no rule yet, Facebook will usually explain that it is trying to fix the problem, was "too slow" to recognize it, and is taking responsibility. The company has said dozens of times that it was "too slow" to recognize Russia's manipulation of the 2016 U.S. presidential election, Myanmar's genocide, and ethnic violence in Sri Lanka. But "too slow" could be fairly interpreted as a euphemism for deliberately ignoring a problem until someone important complains.

"They don't want to be held liable for anything," says Eileen Carey, a graphic designer and activist. Since 2013 she's kept records of drug dealers posting pictures of pills on the web, some of them captioned as OxyContin or Vicodin. Many of these posts include a phone number or an address where interested users can coordinate a handoff or delivery by mail. They are, in effect, classified ads for illegal opioids.

Carey's obsession started while she worked for a consulting firm that was helping Purdue Pharma remove counterfeit pills. Most tech companies—including Alibaba, Craigslist, and eBay—were quick to agree to take down these images when Carey alerted them. Facebook and Facebook-owned Instagram were the exceptions, she says.

Carey, who like Zuckerberg is from Dobbs Ferry, N.Y., and lives in the Bay Area, would sometimes end up at parties with Facebook executives, where she'd kill the mood by complaining about the issue. "I started sucking at parties once I started working on the whole getting-rid-of-fake-drugs-on-the-internet thing," she says. Also since 2013, Carey has kept an eye on the issue, spending a few minutes most days searching for (and reporting) drugs for sale on Facebook and Instagram. Usually she got a dismissive automated response, she says. Sometimes, she got no response at all. At the time, technology companies



were advocating at conferences and in research reports for harsher enforcement of drug sales on the anonymous dark web. In reality, Carey came to believe, most of the illicit purchases occur on the regular web, on social media and other online marketplaces. "People were literally dying, and Facebook didn't care," she says.

In 2018, Carey began tweeting her complaints at journalists and Facebook employees. In April, Guy Rosen, a Facebook vice president who was training the company's AI software, sent her a message, asking for more examples of the kind of content she was talking about. "Do a search for #fentanyl as well as #oxys on IG [Instagram] and you'll see lots

of pics of pills, those accounts are usually drug dealers," she wrote to Rosen. She sent over some Instagram posts of drugs for sale. "I reported these earlier and they are still there in the #opiates search—there are 43,000 results."

"Yikes," Rosen wrote back. "This is SUPER helpful." Facebook finally removed the searchable hashtags from Instagram in April—a week after being criticized by Food and Drug Administration Commissioner Scott Gottlieb and just a day before Zuckerberg testified before Congress.

Since then, Carey has kept her eye on news reports from Kentucky, Ohio, and West Virginia, where deaths from opioid overdoses have declined this year. Some articles speculate that the reason may be a rise in community treatment centers or mental health resources, but Carey has a different theory: "The only thing that really changed was the hashtags."

Even so, Facebook's drug problem remains. In September the *Washington Post* described Instagram as "a sizable open marketplace for advertising illegal drugs." In response, Bickert published a blog post explaining that Facebook blocks hundreds of hashtags and drug-related posts and has been working on computer imaging technology to better detect posts about drug sales. She included a predictable line: "There is no place for this on our services."

Zuckerberg, as CEO, chairman, founder, and controlling shareholder, has frequently faced questions about whether he deserves near-absolute power over the company's products. He's strongly resisted this suggestion, except in the realm of content moderation. "I've increasingly come to believe that Facebook should not make so many important decisions about free expression and safety on our own," he wrote in November. The company, he detailed, would establish "an independent body" to make a final call on disputes over what should stay up on Facebook, in a way that will be "transparent

and binding.” The proposed group will include 40 “experts in diverse disciplines,” Zuckerberg wrote. “Just as our board of directors is accountable to our shareholders, this body would be focused only on our community.”

At the same time, Zuckerberg plans to offload as much of the moderating as possible to computers. Already, Bickert says, content reviewers are training the machines. “The reviewers say, ‘Yes, machine, you got it right on this one. This is hate speech’ or ‘No, machine, you got it wrong this time. This is not hate speech.’” Facebook says that 52 percent of posts taken down by moderators as hate speech have already been identified as such by the algorithm.

Another way to cede responsibility is to encourage users to try the company’s new encrypted messaging services, which are designed so not even Facebook can see what they’re saying to one another. “I believe a privacy-focused communications platform will become even more important than today’s open platforms,” Zuckerberg wrote in his March 6 blog post. Some read it as victory for Facebook’s critics after the Cambridge Analytica scandal, but even Zuckerberg acknowledges a

tradeoff: The shift could make it easier for terrorists, drug pushers, and propagandists to run wild. On Facebook’s WhatsApp service, which is already encrypted, misinformation in India last year has led to panic in villages over suspected child abductors, causing some to stone or lynch uninvited visitors. WhatsApp couldn’t remove the content; it could only reduce the number of people a message can be shared with. Since that move, there’s been another “WhatsApp lynching,” according to the BBC.

In the meantime, Facebook executives have been trying to reassure the world. Bickert traveled to Sri Lanka in September, meeting with 60 civil society groups, hearing their concerns about, among other things, fake accounts. There was lots to talk about. “Their Community Standards are very specific and have, for example, things like how immediate a threat content is,” says Sanjana Hattotuwa, a senior researcher with the Centre for Policy Alternatives in Sri Lanka. But, he says, “the whole point about some of this content is to radicalize over a longer period of time.”

Recently, Hattotuwa’s group warned in a blog post that Facebook was too close with the country’s government, exchanging gifts and gaining favor with officials who’ve also been accused of spreading misinformation for political purposes. The post cited a tweet from an official in which Ankhi Das, Facebook’s public policy director for the region, gave former Prime Minister Mahinda Rajapaksa, whose supporters were blamed by some for orchestrating anti-Muslim riots, a large painting from a local artist. Facebook says the gift was “communal art” with no cash value and that it gave paintings to other Sri Lankan leaders.

The overarching concern from Hattotuwa, Carey, and critics around the world is that Facebook is more interested in fixing the perception of its problems than the actual problems themselves. “Alex,” who asked that his real name not be used out of fear of retribution, was recently offered a job at Facebook in London focusing on the company’s policy programs. He’d worked on political campaigns and at a big tech company, and in one of about a dozen meetings he spoke to Victoria Grand, Facebook’s global head of policy programs.

Alex recalls asking her about the true nature of the role, in light of Facebook’s scandals: “Do you need someone to effect lasting change or to change the channel?” He says Grand told him that no candidate had ever asked that question before. She paused before continuing.

“Look, I think everybody wants to be idealistic and promise the former,” he remembers her saying. “But no one is going to listen to all the good stuff we do if we’re just stuck responding to the negative.” Facebook says Grand “remembers a very different conversation.” Alex declined the job offer. **B**



CAREY



SO YOU WANT TO BE A POP STAR IN CHINA



我可以用
中文唱
“我爱你”*

How a Danish crooner hit it big
in the world's hottest music market
By Lucas Shaw

*I can sing "I love you" in Chinese

Two hours before the concert was scheduled to begin in Shanghai's Xuhui District, young women were already lined up outside a coffee shop under a pink neon sign that read, "Please don't tell my Mom." One wore a hooded sweat-shirt with the name and face of the night's performer, the Danish pop star Christopher Nissen. Others dressed, for unclear reasons, like Harry Potter and his classmates. Most wore all black, as they'd been instructed on the invitation. When the doors opened, around 7 p.m., on a Monday evening last December, these early birds—many of whom had already intercepted Nissen the night before at the airport—swarmed to the front row, bypassing a table with free snacks and drinks. They were followed, at a more leisurely pace, by ad agency executives and social media influencers, who'd come at the invitation of the night's sponsor, Dynaudio, a Danish stereo company. Guests chatted through a presentation about Dynaudio's new wireless speakers, then hushed when a Chinese emcee standing on a makeshift stage in the front of the room introduced the night's musical guest.

Nissen ambled out wearing a V-neck white T-shirt and a black leather jacket. "Is this your first time in Shanghai?" the emcee asked him in English.

"Noooooo," the crowd answered for him.

"They know," Nissen said, beaming. He dedicated his first song,

Heartbeat, to the fans who met him at the airport and later performed a brief verse in Mandarin. "It's my little party trick when I'm out here," he said, with a knowing wink. The girls in the front row roared.

Nissen is 27. He has sandy hair, blue eyes, a strong jaw, and looks like he walked off the assembly line from some global pop star factory—which, in a sense, he did. To his fans, he's known simply as Christopher; to his record label, Warner Music Denmark, he's "the Danish Justin Bieber." He performs songs in English, almost exclusively about romance. Tracks from his recent album include *Naked*, *Baby Making Interlude*, and *All About Sex*. In his latest mildly suggestive single, *Monogamy*, he croons, "These pretty girls they tryna get me confused/ Though I get cravings, they got nothing on you/ Damn, it's so tempting, but I leave on my own/ My heart is hungry, but I eat home." Then it suggests that the listener "put that sexy thing on top of me."

Critics may find Christopher's songs unimaginative, and he's never cracked the Billboard Hot 100, that U.S. measure of pop stardom. But he is huge in two places: Denmark and China, the latter of which has adopted him as its native son. All of the 12 singles he's released in China since 2014 have broken into the top 10; eight have gone to No. 1. He's performed in several of China's largest cities, and he's become a spokesman for

Huawei Technologies Co., the Chinese telecom company.

Being big in China didn't used to mean much. In 2013 the music industry made less money there than it did in Denmark. Piracy was so pervasive that Baidu Inc., the Chinese Google, had been branded a copyright infringer by the International Federation of the Phonographic Industry, which represents the world's big record labels. That's changed. Baidu now runs a streaming music service that pays for rights, and other big Chinese internet companies have invested billions of yuan into their own streaming services. In 2017, China became one of the world's 10 biggest music markets for the first time. By next year, it could be in the top five.

Major music labels and artists have scrambled to capitalize, striking deals with the streaming services and opening offices. "China could be the biggest and healthiest music market in the world, if we get it right," says Alex Taggart, a consultant with Outdustry Group, which advises record labels and artists on marketing themselves there. Beijing has limited access to much of the Western internet—and, therefore, Western pop music. Katy Perry, U2, Maroon 5, Bon Jovi, and Bieber are all banned from performing. (The reasons are varied and not always clear. Perry was blackballed for expressing support for Taiwan; Maroon 5, Bon Jovi, and Oasis for supporting Tibetan independence; Bieber for "bad behavior.") Local artists account for more than 80 percent of listenership in China. The rest is a mix of U.S. pop, Korean pop, and electronic dance music, or EDM.

That makes Christopher a pioneer of sorts in China. He already makes more money there than he does in Denmark, or anywhere else, and has been to the country eight times over the past four years. He's taking Mandarin lessons and hopes that a new album will make him a household name from Guangzhou to Harbin. "There is no clear way to do it in China," he says. "It's

Christopher in Hong Kong last year





On the road in Los Angeles in February

such a young market, especially for international artists. Can we build it from the ground up? I am an experiment.”

Christopher grew up in a suburb of Copenhagen. He says he’s wanted to be a pop star since he was 10, when he first listened to Justin Timberlake and Michael Jackson. His parents indulged their son by buying him a guitar and listening to his impromptu concerts in their living room. Christopher taught himself how to play by watching videos online.

In the third grade, he performed in public for the first time at a school competition, singing an original song in Danish. In the song *Are You Coming to the Party Tonight?*, the prepubescent Dane warned a girl that he’d never be able to love again if she turned him down. Christopher won the talent show and

spent the next few years performing at any venue that would have him, most often at an Italian wine bar across the street from his high school.

At 17 he walked into the Copenhagen offices of EMI Denmark (now part of Warner) without an invitation. His hands were so sweaty that he could barely hold his guitar while he strummed a John Mayer song. Even so, an executive invited him to play his own songs for a small crowd. Three days later, EMI called Christopher’s parents and offered to sign their son. His parents agreed, with one condition: He had to finish school. He adopted the first-name stage name and got busy writing songs.

His debut record included a few catchy tunes, but his second, *Told You So*, was a hit. The title track topped the charts in Denmark and

won Pop Album of the Year at the 2014 Danish Music Awards. Advertisers, concert promoters, and reality TV producers all came calling; Christopher said yes to everything, playing 150 shows that year in Denmark. “My face was on 12 million water bottles,” Christopher says. “I was on every poster in every gas station.”

Having conquered the Danish fuel and beverage markets, he and his record label started exploring opportunities abroad. The music video for his song *Copenhagen Girls* had gotten 10 million views on YouTube, and some of those views had to come from outside Denmark. Christopher traveled to showcases in Germany, Norway, and Sweden—but the shows didn’t lead to any new business opportunities, let alone offers to play in the U.K. or U.S.

Unused to being rejected, Christopher tried to understand what went wrong. He’d been careful to avoid the trap of many Danish singers, who write songs for their own country. “You can tell it’s a guy who grew up right around the corner,” he says. People told him he sounded “Justin Timberlake-ish,” which wasn’t necessarily a compliment. Crooners were increas-

ingly losing radio play to big-name EDM artists and their pop star collaborators. Moreover, the love-song market in every other country seemed to be dominated by domestic talent. Ultimately he decided his music just wasn’t up to global heartthrob industry standards. “*Copenhagen Girls* was good, but not a worldwide smash,” he says.

There was one bit of good news: Christopher’s manager told him that the track was near the top of the charts on QQ Music, a streaming service owned by Tencent Group Holdings Ltd. that’s the most popular in China. Christopher had never heard of QQ before—nor had he ever been to Asia—but it was all he needed. He booked a flight to China.

Because it’s still a relatively small market in terms of revenue, China generally



has been treated by most international musicians as part of a broader plan for Asia—adding stops in Beijing and Shanghai to a tour that includes Hong Kong, Seoul, Tokyo, and other major cities. This works for the handful of global superstars—Bruno Mars and John Legend, for instance—but for most artists, it’s not an effective way to get big in China. To do that, according to Warner Music China Chief Executive Officer Andy Ma, who helped Christopher develop his strategy, you need to slug it out in second-tier cities such as Chengdu, Guangzhou, Nanjing, and Wuhan. The concerts won’t be moneymakers, Ma says, but they’re crucial to building an audience in the country. Otherwise, he says, “they won’t remember you.”

Christopher made his first visit in 2014 to perform on TV shows in Shanghai and Changsa, 600 miles west in Hunan province. From Day 1, Ma decided to position him as less aloof than the typical pop idol. He needed to come off as funny and personable but not silly. Chinese talk show hosts

love to subject celebrities to weird challenges, dares, and activities. No matter what they ask, label executives told him, just go with it.

During an appearance on a late-night show—the Chinese equivalent of *The Tonight Show Starring Jimmy Fallon*—the host asked Christopher to pull up his shirt and show off his six-pack. Christopher appeared startled at first and then obliged. Over the next couple of trips, he ate pork intestines and jellyfish on national TV. He sat down for awkward interview after awkward interview, putting on blindfolds and sharing his workout routine. “You feel like you are losing your artistic integrity. Now I’m just a monkey,” he says with a laugh. “But you trust your label people.”

Christopher’s third album, *Closer*, was something of a disappointment when it was released in 2017. One song, *I Won’t Let You Down*, topped the charts in Denmark, but it didn’t rate anywhere else in Europe or in the U.S. China was another story. *Heartbeat*, an ode

to his fans, was No. 1 on the QQ charts for eight consecutive weeks, racking up 250 million streams. Pop ballads, passé in Europe, are still all the rage in China, says Karl Rubin, a producer who’s worked with popular musicians in the country. “China is really hyped on 2014 pop music,” says Rubin. Warner felt confident enough in the appeal of Christopher’s love songs to send him on a two-week tour.

The first rule of touring in China: Don’t pull a Björk. The avant-garde Icelandic performer ended a 2008 concert in Shanghai by singing *Declare Independence*, a track meant to support activists in Greenland and the Faroe Islands but which Björk has since repurposed for other areas. Her adapted lyrics for the occasion: “Tibet, Tibet/ Raise your flag!” The incident prompted international headlines and a Chinese government clampdown. Today foreign artists must obtain a special visa to perform in China, which in some cases requires them to submit a passport, headshot, biography, playlist,

lyrics of all their songs translated into Mandarin, and a video of everyone who will appear onstage.

Ahead of his first solo show in Beijing, Christopher was less worried about Chinese censorship—love songs are generally OK, as long as they’re not explicit—than he was about the possibility that nobody would show up. The charts in China are notoriously difficult to trust or understand. There’s no Billboard-like central body that issues weekly sales figures. Musicians are forced to rely on QQ’s charts and social media followings. “I don’t know if there will be 29 people or 300 or what,” he told his crew. “But we will convert them.” The show was sold out. In addition to Beijing and Shanghai, Christopher would pack venues in Chengdu, Guangzhou, Nanjing, and Wuhan, none of which he’d heard of before the trip.

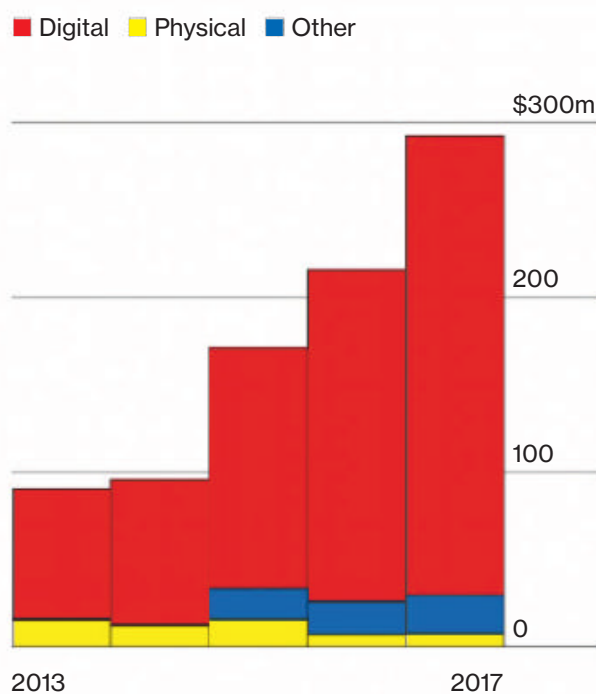
He was scheduled to perform on the Hito Awards show in Taiwan alongside Eric Chou, a pop star known as “king of the lovelorn people.” They would do one song of Christopher’s and one of Chou’s. Warner Music suggested Christopher sing the chorus to Chou’s song in Mandarin. He pulled it off, in front of about 15,000 people. “That was the first time I felt like I could see and feel the success,” he says.

In 2018, Christopher started to take Mandarin lessons. Unlike the major languages of Europe, it’s tonal, meaning one character can be pronounced five different ways, conveying five different meanings. Christopher has spent entire lessons learning just a few words. Dissatisfied with his progress, he recently reached out to his countryman Viktor Axelsen, who—along with being a former world-champion badminton player, Olympic medalist, and big-time celebrity in Copenhagen—is conversant in the language. He connected Christopher with his Chinese teacher. Even so, progress has been slow. “Being able to answer a few questions in Mandarin would make a huge difference,” Christopher says.

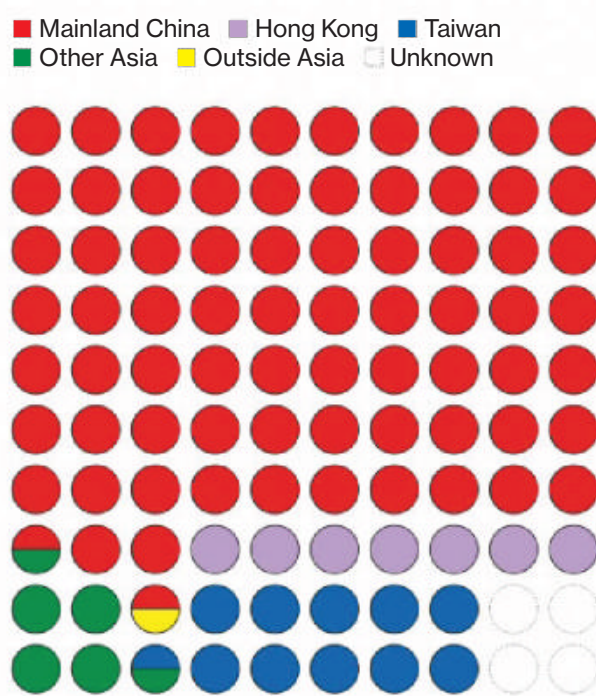
Backstage after the Dynaudio event in Shanghai, he seemed worn down

from the strain of his latest two-week sprint through Asia. He was about to take a 5 a.m. flight to Beijing, where he had a half-dozen performances booked in one day. During the previous 24 hours, he ate squid ink jelly, dressed up as a fashionista’s personal assistant, and offered his opinion to various media outlets on home furnishings and superheroes. “I can’t think of any artist who would do half the shit I did yesterday,” he said, trying to relax in a chair alongside his manager and keyboard player. He drew the line when asked by an interviewer to wear a pink tutu and crown. “You have to know when to say no,” he said.

Recorded Music Revenue in China



Nationality of China’s Hot 100 Artists



The fatigue lifted, briefly, when Christopher learned of another business opportunity. Chinese artists, a publicist said, livestream on QQ Music, earning gifts, including sports cars, from fans who can spend thousands of dollars during a stream. “Daaaaaaaamn,” Christopher said. “Hook a brother up with a livestream session.” The publicist then clarified, awkwardly, that he meant digital sports cars, not actual sports cars, but that didn’t deter Christopher’s enthusiasm for trying it.

The relationship between virtual and real is something he’s been exploring in his music. Among the singles he promoted in Shanghai was *Irony*, about his addiction to social media, its role in his success, and the falseness of its images. *Irony* peaked at No. 7 in Denmark and got to the top 10 in China. The song, he says, is an artistic turning point as he seeks to expand his subject-area repertoire beyond love. “I have some songs that are even better,” he says. “They have a more international approach and sound.”

Christopher’s strategy for his fourth release is to build on his momentum in China and give Europe another shot. He’s just released an album called *Under the Surface*, and he plans to tour Germany in May. He’ll also tour Asia in June, including stops in Hong Kong, Guangzhou, Wuhan, Shanghai, and Beijing.

At the end of the night in Shanghai, Christopher walked back downstairs to take photos with the fans who’d been waiting for four hours. A woman in her early 20s, wearing a black pea-coat and bright red lipstick, had been preparing for her moment with phone and autograph pad in hand. When the time came, she rushed over to meet him and snapped a picture, using a digital filter to superimpose a cat emoji resting underneath his chin. She left, beaming, with an autograph that read, “For Dasy, From Christopher.” It ended with a heart sign, scrawled in gold lettering. Later that night, she uploaded a photo of the page to Instagram and captioned it “See u again.” There’s no doubt she will. **B**

COURTESY, WARNER MUSIC; DATA: IFPI, BILLBOARD CHINA SOCIAL CHART 3/9/2019; NEWS AND FAN REPORTS

TESLA
SECURITY

BOLO

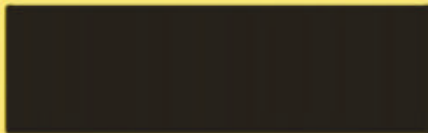
Date: 6/20/2018

DO NOT ALLOW ON PROPERTY

Martin Tripp



TESLA



Information

Report Number:

Name: Martin Tripp

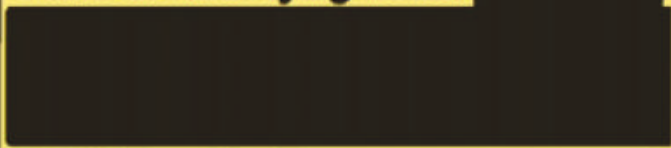
Sex: [REDACTED]

Race: [REDACTED]

Eyes: [REDACTED]

Hair: [REDACTED]

Tattoo or Identifying Marks: [REDACTED]



Notes

Violated HR Policy

Parking Pass: NA

Make: Ford (1) FORD HATCHBACK FORD

(2) FORD ESCAPE

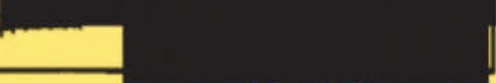
Year: 2017/2018

Model: Escape

Color: Blue (1) LIGHT / PEACH / GREEN

(2) BLUE

Plate/State: [REDACTED]



Tesla's "be on the lookout" flyer alerting employees, following what later turned out to be a bogus warning of a mass shooter

don't



with ELON

**Did the Tesla CEO cross ethical lines
when he took down a junior engineer?
By Matt Robinson and Zeke Faux**

By the larger-than-life standards of Elon Musk, the story was far from a blockbuster. On June 4, 2018, *Business Insider* reported that Tesla Inc. was scrapping or reworking 40 percent of the raw materials at the Gigafactory, its huge battery plant in the Nevada desert. The article cited a source who figured the inefficiency had cost Musk's electric car company \$150 million, describing giant piles of scrap materials in the factory. Tesla denied the report, and a few hours later, the world moved on.

The world, that is, except Elon Musk. Although he wasn't asked about the *Business Insider* story the following day at the company's annual meeting, he stewed for weeks, dispatching a team of investigators to try to figure out who'd shared the information with the press.

The leaker, they determined, was one Martin Tripp, a slight man of 40 who'd spent his career in a series of low-level manufacturing jobs before finding his way to the assembly line at the Gigafactory. Tripp later claimed to be an idealist trying to get Tesla to tighten its operations; Musk saw him as a dangerous foe who engaged in "extensive and damaging sabotage," as he wrote in a staff memo. He implied that Tripp had shared the data not only with the press but also with "unknown third parties."

Could larger forces be at work? Musk wondered out loud. Could Tripp be coordinating with one of Tesla's many enemies—oil companies, rival automakers, or Wall Street short sellers? "There are a long list of organizations that want Tesla to die," he warned.

On June 20, the company sued Tripp for \$167 million. Later that day, Tripp heard from the sheriff's department in Storey County, Nev. Tesla's security department had passed a tip to police. An anonymous caller had contacted the company to say Tripp was planning a mass shooting at the Gigafactory.

When the police confronted Tripp that evening, he was unarmed and in tears. He said he was terrified of Musk and suggested the billionaire might have called in the tip himself. A sheriff's deputy attempted to cheer up Tripp and then called Tesla to tell the company that the threat, whoever had made it, was bogus. Tripp wasn't dangerous.

Many chief executive officers would try to ignore somebody like Tripp. Instead, as accounts from police, former employees, and documents produced by Tesla's own internal investigation reveal, Musk set out to destroy him.

Tesla's PR department spread rumors that Tripp was possibly homicidal and had been part of a grand conspiracy. On Twitter, Musk suggested the *Business Insider* reporter, Linette Lopez, was on the payroll of short sellers and claimed Tripp had admitted to taking bribes from her in exchange for "valuable Tesla IP." Lopez denied the allegation.

The Tripp incident was the beginning of a social media meltdown so epic that the U.S. Securities and Exchange Commission forced Tesla to appoint a so-called Twitter sitter, an in-house lawyer who's supposed to vet Musk's tweets. Since last summer, Musk's antics have included:

① Baselessly accusing a British cave diver on Twitter of pedophilia;

② Falsely claiming on (where else?) Twitter that investors had put up funds to take Tesla private at \$420 a share, leading to an SEC lawsuit;

③ Somehow igniting a feud with B-list hip-hop artist Azealia Banks ("Elon will learn very soon who is more powerful of us two," Banks posted on Instagram);

④ Puffing a joint during a live podcast taping, causing the federal government to review the security clearance needed for his rocket company, SpaceX.

Musk's treatment of Tripp threatens to complicate this legal and regulatory mess. The security manager at the Gigafactory, an ex-military guy with a high-and-tight haircut named Sean Gouthro, has filed a whistleblower report with the SEC. Gouthro says Tesla's security operation behaved unethically in its zeal to nail the leaker. Investigators, he claims, hacked into Tripp's phone, had him followed, and misled police about the surveillance. Gouthro says that Tripp didn't sabotage Tesla or hack anything and that Musk knew this and sought to damage his reputation by spreading misinformation.

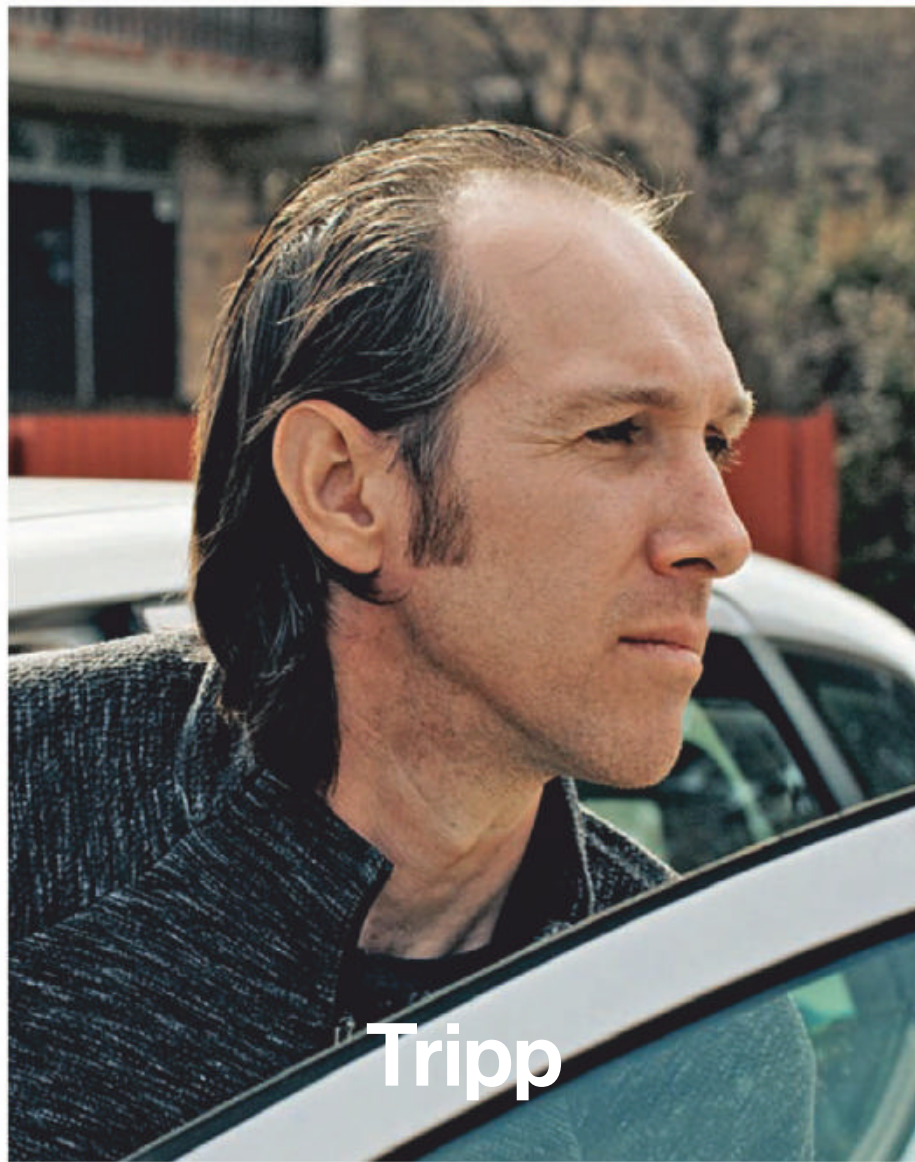
A Tesla spokeswoman said in a statement that Gouthro's allegations "are untrue and sensationalized," but she didn't comment on specifics. She pointed out that Gouthro never raised any concerns until he was fired for "poor performance." Gouthro disputes this and says his performance reviews were mostly positive. He says he's coming forward to let regulators and the public know what Tesla is capable of.

"They had the ability to do things I didn't even know existed," he says. "It scared the shit out of me."

Gouthro isn't the first person to blow the whistle on security operatives at a fast-growing transportation company. Two years ago, Richard Jacobs, a manager of global intelligence at Uber Technologies Inc., claimed his colleagues surreptitiously recorded conversations of rival executives and its own employees, among other ethically dubious actions. He later walked back some of his accusations, but Uber's new management has since apologized, disavowed surveillance, and generally promised to be nicer. Two of the Uber investigators named by Jacobs, Nicholas Gicino and Jacob Nocon, sued him for defamation, calling his claims "character assassination for cash." They said his accusations would make it hard for them to get new jobs.

They were wrong. While the press reacted to Uber's alleged misdeeds with shock—"F---ing blockbuster bonkers criminal allegations," tweeted Amir Efrati, a reporter at the *Information*—Musk saw some promising recruits. In early 2018 he named Jeff Jones, a top Uber security executive, as his global security chief and hired Gicino and Nocon as investigators, interviewing the three personally, according to Gouthro. Musk defended Gicino to the tech news site *Gizmodo*, saying he'd been "thrown under the bus by Uber for the sins of others." Tesla didn't make Gicino or Nocon available for comment; Jones, who left Tesla in November, declined to comment.

“They keep saying I’m stealing data. I’m not that smart”



At this time, the Gigafactory, a huge three-story expanse 20 miles east of Reno, was a chaotic place. Musk had warned repeatedly that Tesla would have to survive “production hell” as it scrambled to hire staff and speed up manufacturing for the Model 3 sedan. He suffered through the experience, sleeping in his office and later giving tearful interviews in which he confessed he was near the end of his rope. “This is like—I tell you—the most excruciatingly hellish several months that I have ever had,” he said at Tesla’s annual meeting in June 2018.

It was this chaos that Tripp, a former U.S. Navy electronics technician who joined the company in late 2017, claimed he wanted to calm. He complained to superiors that the factory was in a constant state of flux and there were parts scattered everywhere, often in ways that seemed to him to be unsafe and wasteful. He suggested his bosses try to cut down on scrap, then wrote an email to Musk that went unanswered. “I kept bringing this up to management, supervisors, anyone who would listen,” Tripp would later tell the *Guardian* in an interview. “Everyone just said, ‘Yeah, whatever.’”

Gouthro says that if Tripp was ignored, it was partly because his problems barely rated in Nevada. The Gigafactory, one of the world’s largest buildings by floor area, had been filled with workers so quickly that it was almost impossible to control. Not long after Gouthro started in January 2018, he discovered

that many employees, some of whom were living out of their car in the corners of the industrial park, were using cocaine and meth in the bathrooms. Others were having sex in parts of the factory that were still under construction. Gouthro says the scanners guards used to check badges were unreliable, so they’d wave in anyone with a piece of paper that looked legitimate. Local scrap yards called him to report thieves were trying to sell obscure electric vehicle parts.

Gouthro’s job was to come up with a system to bring order. A 32-year-old former U.S. Marine, he’s tall and buff, with a full sleeve of tattoos on his left arm. He’d worked at Facebook Inc. in an operations center that responded to dangerous situations spotted on live videos. The work had been upsetting, but Gouthro says Facebook’s was a far more professional environment than Tesla’s. Early on, according to Gouthro, a company lawyer told him that the previous head of security at the Gigafactory, Andrew Ceroni, had left after a bitter dispute. The lawyer said Ceroni had spied on a union meeting on Musk’s orders and then threatened to tell the world about it when he left the company. Ceroni declined to comment.

While Gouthro was trying to address the sex, drugs, and raucous disorganization, Tripp decided to go public. He had access to Tesla’s internal production database and dug into it to figure out just how much material was being wasted. He decided to go to Lopez, who’d written about Tesla for *Business Insider*, emailing and texting her numbers showing wasted material and pictures of battery parts that he said could catch fire.

Tripp hoped that when Lopez’s story came out, Tesla would be forced to make the changes he’d suggested. Instead, Tesla said the waste was normal and no damaged batteries made it into finished cars. “As is expected with any new manufacturing process, we had high scrap rates earlier in the Model 3 ramp,” Tesla told *Business Insider*. “We want to ensure that only the highest-quality parts are used to create the best vehicles for our customers.”

Meanwhile, Gouthro went to work to identify the leaker, reviewing video footage taken from the floor of the Gigafactory. At the same time, he says, Gicinto and Nocon worked backwards to see who’d accessed data that could result in the numbers published in *Business Insider*. It turned out Tripp had been the only one to look up the exact information the story cited.

The security team had their man, but they didn’t know what other secrets he might have seen. Tripp and a few other employees were asked to turn their laptops in for a routine update that was, in fact, a forensic audit. Gouthro also sent a plainclothes security guard to the assembly floor to keep an eye on Tripp.

When Tripp arrived at work on June 14, he was met by a human resources representative, who escorted him to a conference room. When he got there, Gicinto and Nocon were waiting. According to a transcript viewed by *Bloomberg Businessweek*, the conversation started on friendly terms, with the two interrogators asking Tripp about reports he’d made to his bosses. “This to me is a major safety, a public safety concern,” Tripp said, ▶

◀ patiently explaining the punctured battery cells he'd seen. They mentioned the *Business Insider* story repeatedly without asking Tripp if he was the source.

Then, two and a half hours into the interview, the investigators disclosed that Tripp had been the only one who'd accessed the manufacturing numbers. Tripp admitted he was the leaker. But the transcript shows that he denied accepting bribes—despite Musk's later Twitter claims to the contrary—and he said he hadn't given the information to anyone else. Gouthro, who wasn't in the interrogation room, says at one point he saw a colleague reading the text messages and emails that Tripp was sending during breaks in the questioning. He says that somehow Tesla was able to access Tripp's communications in real time.

The interview lasted almost six hours. By the end, the investigators seemed sympathetic, telling Tripp what he'd done was “not even close to anything bad.” Tripp pulled out his phone and showed them a video of himself playing guitar. “Dude, that's impressive,” one said. Gouthro says they debriefed a furious Musk via video conference. Tesla fired Tripp on June 19.

The following day, news of the lawsuit hit the internet. Tripp Googled himself and saw a story titled, “Martin Tripp: 5 Fast Facts You Need to Know,” which said he lived in a rental apartment in nearby Sparks, Nev. Panicked about who might come find him, he sent an email to Musk. “You have what's coming to you for the lies you have told to the public and investors,” he wrote.

His former boss, of course, engaged him with gusto. “Threatening me only makes it worse for you,” Musk replied. Later, he wrote: “You should be ashamed of yourself for framing other people. You're a horrible human being.”

“I NEVER ‘framed’ anyone else or even insinuated anyone else as being involved in my production of documents of your MILLIONS OF DOLLARS OF WASTE, Safety concerns, lying to investors/the WORLD,” Tripp responded. “Putting cars on the road with safety issues is being a horrible human being!”

The anonymous shooting tip was called in to a Tesla call center a few hours later; then Gouthro relayed it to the Storey sheriff's office. Tesla also printed out a BOLO flyer—short for “be on the lookout”—with Tripp's smiling face on it and the words “do not allow on property.”

After Gouthro had called the sheriff, he made a second call—to the private investigators he says Tesla kept on retainer, asking them to find Tripp. The PIs found Tripp before the police did, tracking him to the Nugget casino in Reno. Gouthro says his boss told him not to tell the cops that Tesla had Tripp followed.

Meanwhile, Musk emailed a reporter at the *Guardian*: “I was just told that we received a call at the Gigafactory that he was going to come back and shoot people,” Musk wrote. “I hope you all are safe,” the reporter replied.

A sheriff's deputy, Tony Dosen, met Tripp on the street outside the casino. Body cam footage shows Tripp shaking and crying as he walked up to the police. He said he didn't

have a gun. Then he sat down on a park bench and started telling the police what had been going on since he'd clumsily attempted to blow the whistle on one of the world's richest and most famous men.

“They keep saying I'm stealing data,” Tripp can be heard saying between sobs. “I'm not that smart.” He said he learned about the threat he'd supposedly made from a *Washington Post* reporter, who'd called him after a tip from Tesla.

“This is sort of strange,” Dosen told Tripp. “It's almost like a movie.”

The Storey County Sheriff's Office is in Virginia City, a one-stoplight town, population 855, with a tired row of Old West tourist attractions. The area is so sleepy, officers are often called to chase raccoons out of the trash. Their main tasks include issuing work permits to each prostitute at the local brothel.

Gerald Antinoro is the sheriff, and he looks the part, dressed in black cowboy boots, a black denim jacket, and black Wranglers, with a pistol on his hip. In an interview in his office months after the incident, he still seems both mystified and amused by the Tesla shooting threat. The sheriff says that when he'd looked into the anonymous call after police confronted Tripp, the threat seemed less threatening than the company made it sound. The caller said Tripp was volatile but didn't say he was on his way to shoot up the place. “You remember playing telephone as a kid?” Antinoro asks. “It got blown out of proportion.” He dropped the investigation when Tesla declined to make available a colleague of Tripp's who might have called in the tip. To Antinoro, one of the strangest parts of the situation was that after he told the company the threat was false, it asked him to put out a press release hyping it. He declined, but Tesla publicized the incident anyway. The morning after the threat was debunked, a spokesman texted another reporter: “Yesterday afternoon we received a phone call from a friend of Mr. Tripp telling us that Mr. Tripp would be coming to the Gigafactory to ‘shoot the place up.’”

“It's one of them head-scratchers,” the sheriff says. “The only way the press knew anything about it was from them.”

After he was outed, Tripp hired a lawyer who worked on contingency and filed a claim with the SEC, which receives 10,000 or so such reports a year. Fewer than 1 in 100 leads to a case, but the successful tipsters can get life-changing payouts—as much as 30 percent of any fine.

The lawyer, Stuart Meissner, specializes in representing whistleblowers. His claim to fame is working with a Monsanto Co. employee who got a \$22 million award in 2016. But Meissner doesn't seem too picky about his clients. His website features a whistle, a bag of money, and a picture of himself glowering. “Your whistleblower award could be worth millions of dollars,” it says. “We will beat any competing fee arrangement by 20 percent.” Meissner says he vets his clients extensively.

Tripp has since changed lawyers, but the publicity over the case caught the attention of one of Gouthro's underlings, Karl Hansen. Last summer, Hansen, a former U.S. Army

“We started connecting some dots and some trends, and here we are”



Gouthro

Hansen

investigator and special agent, flew to New York and met with Meissner, who got him booked on the Fox Business channel. His allegations were wilder than Tripp's: Hansen said Tesla was ignoring huge amounts of theft and drug-dealing at the Gigafactory. "A member of a Mexican cartel was in fact trafficking in potential large quantities of methamphetamine and cocaine," he said on TV, complaining that his investigation was shut down prematurely.

Hansen flew back to Reno and reported to work at Tesla, apparently unaware that Musk might not take kindly to his impromptu media tour. He was fired that day. (Sheriff Antinoro said he'd looked into the allegations and didn't find them credible. Musk told *Gizmodo* that Hansen was "super nuts," using the peanut emoji.)

Gouthro says that after he got fired from Tesla in December, Hansen convinced him he should go public. He hired Meissner and filed a formal report to the SEC that backs up Hansen's claims. "We started connecting some dots and some trends, and here we are," Gouthro says. He worries that speaking out will make him unemployable but says that telling the truth is too important.

Gouthro and Hansen seem to sincerely believe that what they helped Tesla do to Tripp was wrong. They also say, without offering proof, that a Tesla investigator installed a device at the factory to monitor everyone's private communications.

Even if what Gouthro and Hansen say is true, it's not clear

it would lead to a case for securities regulators. Tripp, on the other hand, has information that might be more relevant. He's moved to Hungary, where his wife has family, to avoid attention; but the SEC called him in July and interviewed him for several hours. A person familiar with the meeting says Tripp told the agency that he'd found data that seemed to contradict the production numbers that Musk was touting. "What Tesla did to Tripp is terrible," says Tripp's lawyer, Robert Mitchell, who's representing him in a countersuit against the company that alleges defamation. "His life is ruined. He's scared of these guys."

Musk, true to form, is still tangling with the SEC. The agency is asking a judge to hold him in contempt over violations of a settlement reached after the \$420 tweet and could ask to have him removed from Tesla. The fight is a distraction from what has been, by any rational measure, an amazing year for Musk. Tesla hit its goal of making 5,000 cars a week in July. Last month the company lowered the price of its Model 3 to \$35,000, a goal that once seemed unattainable. It will introduce an SUV, the Model Y, on March 14. In early March, SpaceX completed a successful test mission for a capsule that will one day send astronauts into orbit.

Antinoro says he's told his force not to bother investigating crimes at the Gigafactory unless Tesla starts cooperating. Big business, he's decided, is its own strange world. "Standard Oil was probably as weird as Elon Musk," he says. **B**

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75
Fleet Feet's very, very
smart running shoe

76
Stepping into Damien
Hirst's world, at
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78
Best rides for
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79
A guitar pedal too
pretty to stomp

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Edited by
Chris Rovzar

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Jean Nouvel designed the
National Museum of Qatar
out of cascading disks
to evoke a desert rose

A year and a half after the Louvre Abu Dhabi opened, the Gulf is getting another Jean Nouvel landmark—the National Museum of Qatar. Spread across more than 36 acres, the museum, which officially opens in Doha on March 28, contains 560,000 square feet of galleries, conservation space, theaters, educational facilities, and restaurants. “As you walk through the different volumes, you never know what’s coming next,” Nouvel said in a statement. “The idea was to create contrasts, spring surprises.”

One of those surprises will be the museum’s collection, which until now has been a tightly guarded secret. The Al-Thani, the country’s ruling family, are some of the most prolific collectors in the world. Various branches of the clan own, among other works, *The Card Players* by Paul Cézanne, the 30-carat Shah Jahan Emerald, and a \$142 million triptych by Francis Bacon. But more than 80 percent of the 94,000 square feet of gallery space will be devoted to

the museum’s permanent collection, which focuses on “the environmental, cultural, and political history of Qatar.”

In total, there are 11 interlinked galleries on a 1.5-kilometer-long “visitors circuit,” a tour through the museum that’s supposed to take about two hours. At the end, museumgoers will arrive at the restored Royal Palace, an early 20th century mass of crenelated sandstone that’s dwarfed by the new building.

The project’s real star, at least for now, is Nouvel’s architecture. Designed to resemble a desert rose, a type of crystal formation that occurs in arid regions, it’s a riotous, tumbling collection of round planes that looks even better in reality than it did in renderings (a rare feat). In front of the museum, just past a highway, visitors can see the sparkling Doha Bay.

The museum is only one star in a constellation of cultural wonders coming this year. For more enticements from around the globe, read on through our spring preview.



A Borda [Telepassagem] by Ernest Neto

“SOROLLA: SPANISH MASTER OF LIGHT.” NATIONAL GALLERY, LONDON

Joaquín Sorolla y Bastida isn’t exactly a Spanish secret, but he’s relatively unknown to the general public. That will change once this exhibition of 60 works opens, the first London retrospective of the artist since 1908. Viewers will experience Sorolla’s brilliant painterly glow: Sunlight breaks through sailcloth, waves sparkle, and flowers jump off the canvas. About a third of the works in the exhibition come from rarely seen private collections. *March 18–July 7*

BW PICK

“ERNESTO NETO: SOPRO [BLOW].” PINACOTECA, SAO PAULO

Neto is one of Brazil’s most famous living artists, primarily because of his advocacy for indigenous Brazilians living in the rainforest. As the new government threatens protections for these people and their lands, Neto’s sprawling show sustains an unsettling urgency. *March 30–July 15*

“TETSUYA ISHIDA: SELF-PORTRAIT OF OTHER.” REINA SOFIA MUSEUM, MADRID

Japanese artists have been at the forefront in depicting alienation in contemporary society, and Ishida, who died at 31 in 2005, could be the movement’s poster boy. Although his career lasted just 10 years, he created a large body of artworks—70 of

which will be on display. *April 11–Sept. 6*

“PREHISTORY.” CENTRE POMPIDOU, PARIS

“Prehistory,” the primitive time when human objectivity wasn’t quite formed, is a modern concept. Yet the idea, simplistic as it might seem now, was vitally important to many of the 20th century’s most prominent artists. The Pompidou is wading into these muddy waters with a show devoted to the topic. *May 8–Sept. 16*

MUSIC

WAGNER’S RING CYCLE. METROPOLITAN OPERA, NEW YORK

The infamous Robert Lepage production



ART

“THE WORLD BETWEEN EMPIRES.” METROPOLITAN MUSEUM, NEW YORK

From 100 B.C. to 250 A.D., the cities of Petra, Palmyra, and Hatra were meeting points between the Roman Empire and Parthian Iran. In a locus of commerce and culture, they had an extraordinary output of art and architecture. Now, 2,000 years later, the Met will stage an exhibition of 190 objects from the era. *March 18–June 23*

returns, but this time we're told that the \$16 million production's 45-ton machine that serves as the set for all four operas will actually work. Even if it doesn't, it will be a guaranteed spectacle. *March 9–May 11*

HANDEL'S *SEMELE*. ON TOUR

John Eliot Gardiner's 1983 recording of Handel's sensuous opera has been a lasting favorite since it was released. This spring he's taking it on tour again, performing with the Monteverdi Choir and English Baroque soloists at locations in Barcelona, London, Milan, Paris, and Rome. *April 8–May 8*

VERDI'S *OTELLO*. BADEN-BADEN, GERMANY

The Berlin Philharmonic, arguably the best orchestra in the world, sets up shop for the resort town's Easter festival. Conducted by Zubin Mehta, they'll premiere a production of Verdi's *Otello*, with star soprano Sonya Yoncheva as Desdemona. *April 13–22*

ANNA NETREBKO. BERLIN

Anyone who's heard Netrebko recently knows that she's at the top of her game and likely the best soprano performing right now. She's doing a recital with the conductor Daniel Barenboim at Berlin's Staatsoper. Tickets are still available but are going fast. *April 19–20*

BARBARA HANNIGAN. OJAI MUSIC FESTIVAL, OJAI, CALIF.

The Ojai Music Festival is an annual celebration of new and modern music, set in the lovely vacation town of Ojai, Calif., about two hours north of Los Angeles. Headed by Thomas Morris, the

**BW
PICK**

festival invites a different person to be music director each year. For 2019 that role will be filled by Barbara Hannigan, who first came on the scene as a dynamic soprano and has also become known as an inventive conductor. At this year's festival, she'll both conduct—notably a semistaged production of Stravinsky's neoclassical opera *The Rake's Progress*—and perform in pieces by Schoenberg, Gérard Grisey, and John Zorn. *June 6–9*

DANCE

BUTOH THEATER. KYOTO, JAPAN

The first dedicated space for Butoh, the avant-garde Japanese dance theater that's as much performance art as it's actual dance, begins its spring season with a trio of recent works. There are two performances a night, three times a week, with space for just nine attendees at each. *Through April 30*

BREAK-THROUGH! STUTTGART BALLET

The Stuttgart Ballet and the German National Theatre Weimar have commissioned world-famous choreographers Nanine Linning, Katarzyna Kozielska, and Edward Clug to create works to celebrate the centennial of the abolishing of the German monarchy and the founding of the Bauhaus school. *March 28–July 9*

WOOLF WORKS. LA SCALA, MILAN

The choreographer Wayne McGregor's ballet triptych, inspired by Virginia Woolf, comes to La Scala for the first time. Alessandra Ferri and Federico Bonelli, two charismatic guest artists at the Ballet Company of Teatro alla Scala, will star in an almost universally lauded production. *April 7–20*

NIGHT OF 100 SOLOS

To mark the 100th birthday of the late American choreographer Merce Cunningham, the Barbican in London, BAM in New York,



UCLA's Center for the Art of Performance, and the Merce Cunningham Trust have banded together to create a concurrent, multicentric performance of his modern dance. Twenty-five dancers, along with an ensemble of musicians, will perform in each city for 75 minutes. A different dancer from Cunningham's eponymous company will oversee each performance, and almost half of his former dancers will be involved. It's the largest-ever performance of one of the 20th century's most important choreographers. *April 16*

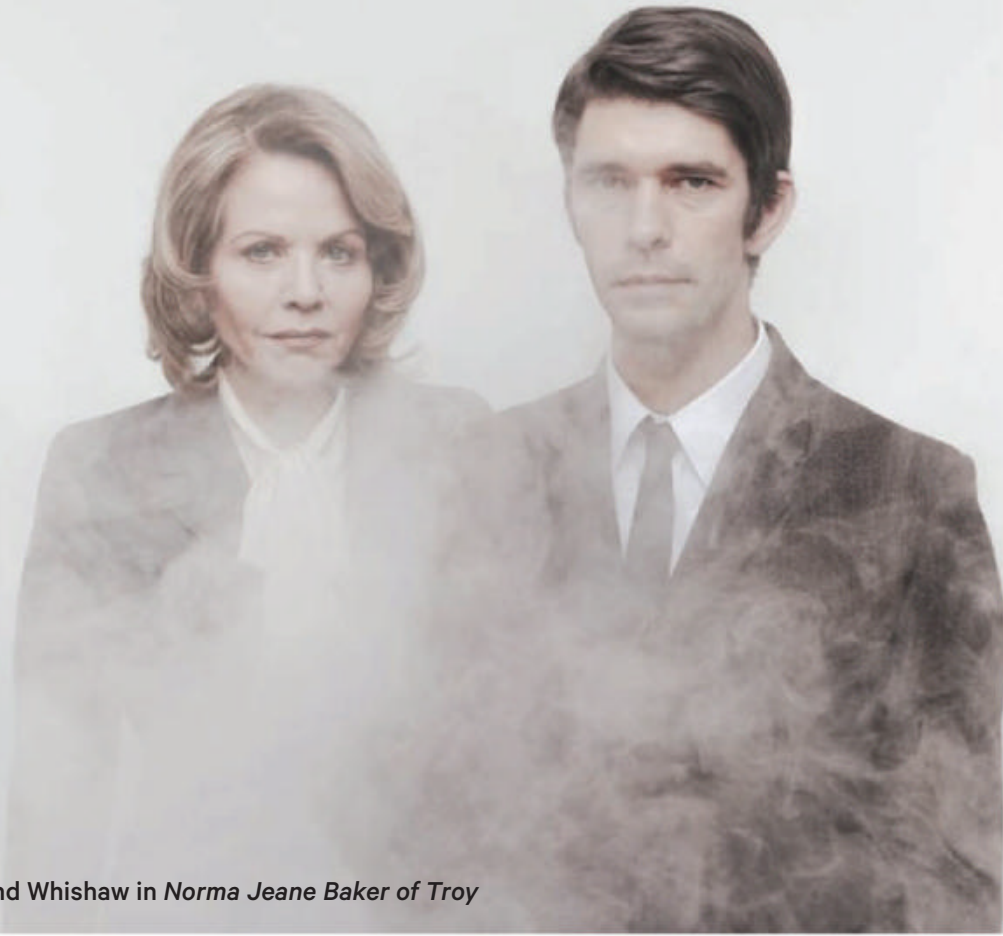
A MOST AMBITIOUS AMPHITHEATER

Almost seven years and half a billion dollars in the making, the Shed, a mixed-use cultural complex, is finally set to open at the beginning of April. The 200,000-square-foot building, set on the edge of Hudson Yards on the far West Side of Manhattan, has an ambitious slate of programming for its inaugural season. The key draw for the institution will be new work commissioned expressly for its space, which features a unique telescoping roof. The opening production, *Soundtrack of America*, is a celebration of the impact of African American music on contemporary culture, conceived and directed by Steve McQueen. The season will also include a new work by Björk, a play by Anne Carson, and an exhibition and series of live performances conceived by painter Gerhard Richter and the composers Arvo Pärt and Steve Reich. Tickets to many of the opening performances are already sold out, evidence that for many, the Shed was worth the wait.

**BW
PICK**

Das Rheingold at the Metropolitan Opera





Fleming and Wishaw in *Norma Jeane Baker of Troy*

ALEXIE RATMANSKY. AMERICAN BALLET THEATRE, NEW YORK

The MacArthur genius Alexei Ratmansky has been artist-in-residence at ABT for 10 years and has created 15 works for the company. This season the organization will premiere another. Even better, it will roll out an all-Ratmansky program for four performances, including his delightful first work for the company, *On the Dnieper*. *May 21–23*

T H E A T E R

BERNARD-HENRI LEVY'S LOOKING FOR EUROPE. ON TOUR



Bernard-Henri Lévy, the French public intellectual, writer, filmmaker, and commentator, can now add a fifth profession to his résumé: In *Looking for Europe*, a paean to European unity that opened in New York last November, Lévy acts. In 22 European cities, he'll perform a monologue that he'll update before every performance. Guest appearances "might be made" by fellow celebrities. *March–May 21*

BETRAYAL. THE HAROLD PINTER THEATRE, LONDON

As the final production in director Jamie Lloyd's Pinter at the Pinter season, Tom Hiddleston stars in *Betrayal*, Pinter's drama about a trio of lovers who, in their own ways, deceive themselves and one another. *March 5–June 1*

DIE RATTEN. BURGTHEATER, VIENNA

Andrea Breth, the veteran Viennese director, chose a fairly bleak final production before leaving the Burgtheater. Written in 1911 by Gerhart Hauptmann, the tragedy follows the tale of a pregnant, unmarried domestic servant and the middle-class woman who tries to help her before social pressures tear the best-laid intentions apart. Maybe don't bring the kids. *March 27–the end of June*

NORMA JEANE BAKER OF TROY. THE SHED, NEW YORK

A partly spoken, partly sung world premiere starring Ben Wishaw and the opera singer Renée Fleming, the production, staged by the director Katie Mitchell, is Anne Carson's exploration of the lives of Marilyn Monroe and Helen of Troy. *April 6–May 19*

FRANKIE AND JOHNNY IN THE CLAIR DE LUNE. BROADHURST THEATER, NEW YORK

The story of a short-order cook and a waitress's date/one-night stand/relationship by Terrence McNally premiered in 1987 and has had several star-studded revivals since. This time around, Audra McDonald and Michael Shannon, both theater veterans, will bring their golden touches. *May 4–Aug. 25*

B O O K S

RUIN AND REDEMPTION IN ARCHITECTURE

As architectural restoration moves from

the paradigm of historic preservation and into the context of environmental sustainability (simply put, ripping down buildings is wasteful), publishing is catching up. The most recent example is Dan Barasch's lovely paean to preservation masquerading as a coffee-table book. *March 29*

YOUNG NEW YORK

Ethan James Green has bridged the gap between editorial photography and fine art more adroitly than anyone in recent memory. In his first monograph, black-and-white portraits of friends and acquaintances once again blend biography, style, and art. *April 1*

BAUHAUS GOES WEST

The Bauhaus turns 100 this year, and museums around the world are celebrating the school that introduced the world to furniture, architecture, and art we now label midcentury. Bauhaus's influence is in part a result of the teachers' forced exile once the Nazis came to power. Walter Gropius, the school's founder, made his way through England and ended up teaching at Harvard's Graduate School of Design. Marcel Breuer, another architect/designer/teacher, followed Gropius to Harvard, then opened a practice in New York. The artists László Moholy Nagy and Josef Albers ended up at the Illinois Institute of Technology and Yale, respectively. This book, written by Alan Powers, tracks their unlikely journeys around the globe to preach the gospel of modernism. *April 23*

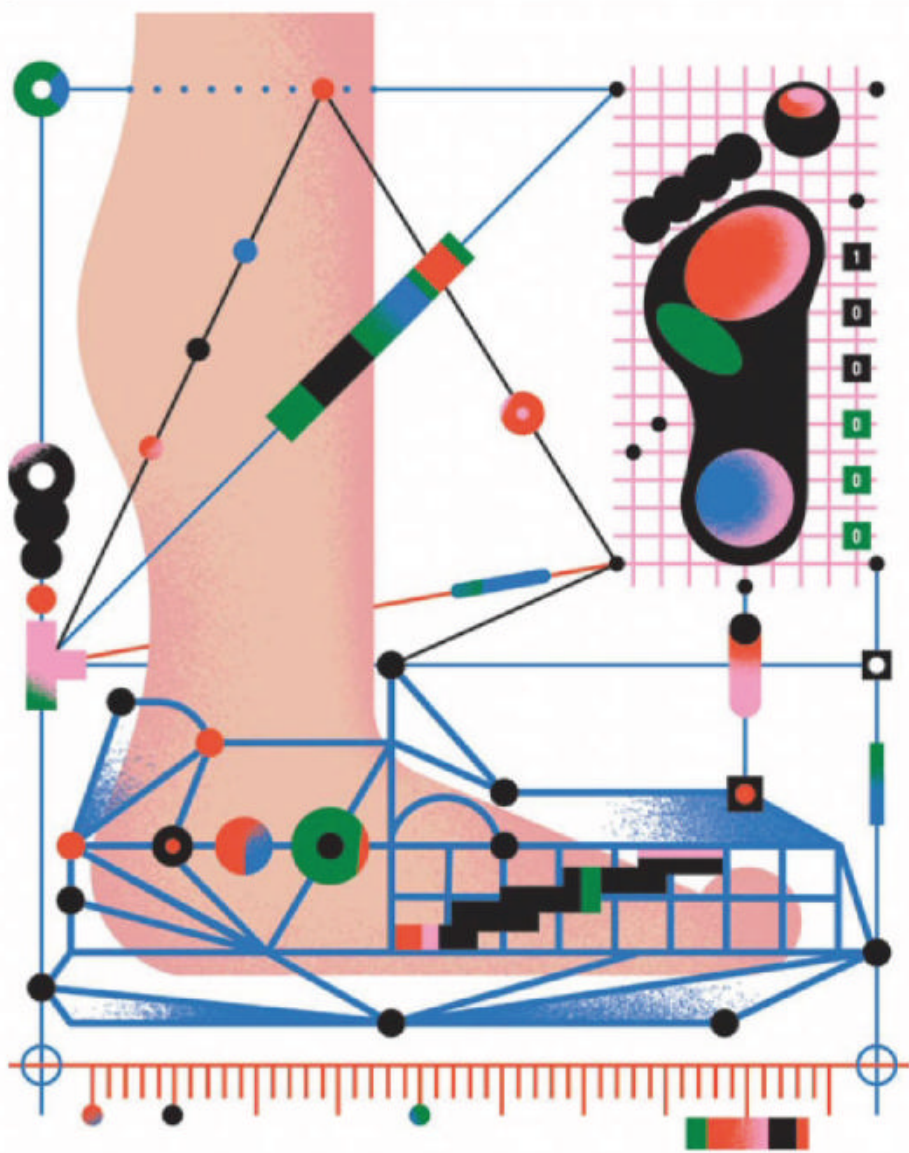


CAMP: NOTES ON FASHION

The Costume Institute at the Metropolitan Museum in New York keeps churning out blockbusters. Next in line for the art and fashion coronation is the show "Camp: Notes on Fashion." As good as it might be, its catalog, created by the Met and distributed by Yale University Press, should be even better. There's new work by Johnny Dufort, a fashion photographer of the moment, and essays by academics and curators. *June 4*

BERTOIA: THE METAL WORKER

At this point, Harry Bertoia (1915–1978) is best known for the latticed metal Diamond chairs he designed for Knoll, but a book by the art historian Beverly Twitchell argues that he should be equally credited as a sculptor and jewelry designer. *March 29*



Running on Data

Shoemaker Karhu based the Ikoni's design on 100,000 scans of feet. *By Jason Kelly*

On the list of endangered retail species, the local running store is right up there with the independent bookshop. We want it to exist, but the internet has made it too easy to buy whatever we want, whenever we want, at the price we want instead.

One of the last great names in running shops has survived, however, thanks to a bit of high-tech jiu-jitsu. Fleet Feet, which first opened in 1976 in Sacramento, began adding 3D scanners at its 177 franchise locations in 2017, using runners' love of data to entice them into its stores and then keep them there long enough to buy something. "People who run enjoy going to a store, because it acts as a bit of a clubhouse," says Huub Valkenburg, chief executive officer of Karhu, which three years ago cut a deal with Fleet Feet to become its exclusive in-house brand. "They want to connect with other runners."

The foot-scanning strategy was originally implemented as a way to make it easier for salespeople to help a customer narrow down options more quickly. Measuring 12 data points, the scans give runners hard data on their own bodies that'll help them find the right fit, whether it's to accommodate an abnormally high arch or a propensity to extensor tendinitis on the top of the foot. Either way, the scanning process has been a hit, serving as an entertaining activity even for nonshoppers.

Buoyed by the program's success, Karhu last year used foot scans from more than 100,000 customers to guide the creation of its latest shoe, the Ikoni. Technically and superficially, it evokes many of the so-called maximalist shoes—bulkier models focused on cushion and protection—that have come to market during the last decade. The movement was led by Hoka One One, founded in 2009 at the height of the barefoot running trend. (You remember Vibram FiveFingers, right?) Shoes in the Hoka lineup became popular with ultramarathoners looking for more support, and I count myself among that group with the brand in my running closet along with my Newtons and Asics.

The data from the scans—7 of the 12 points in particular—persuaded Fleet Feet and Karhu to redesign the "last," a 3D mold that serves as the basis for a shoe's dimensions, including its heel width, instep height, forefoot height, toe box depth, and other measurements.

Rethinking the model in a way that specifically applied to runners was a somewhat radical notion, says Valkenburg. "Lasts are a 60- to 80-year-old concept," he says. "They come in standards that were never adopted for running." The brand says its redesign distributes force to specific areas of the shoe, amplifying momentum and efficiency for longer and faster runs.

I can't say that I'm actually running faster in them, but the Ikonis have worked their way into my regular rotation. The thick midsole gives a lot of protection, which is the way I like it. The narrower-than-most heel width gives better stability in the back of the shoe, while the deeper toe box provides a more natural footfall and doesn't pinch at the point of impact.



The Karhu Ikoni, \$130

The data-reliant nature of the Ikoni may help it stand out in a market overrun with choice. And while the idea of a crowd-sourced shoe might run counter to how people personalize their gear, fitness mavens consider this just the beginning of a future in which a 12-point scan generates an entirely customized shoe, created in the store via 3D printing.

As it turns out, many of us runners have proven to be suckers for anything that can be measured and compared, which helps explain the explosion of GPS-enabled watches and social networks such as Strava. Fleet Feet expects to capitalize on that: This month it will scan its 1 millionth foot. Later this year it will introduce changes to two more Karhu models, the Fusion and the Synchron, shaped by that data. **B**



Butterflies abound, from the bedrooms to the jacuzzi

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Sleep With the Fishes

The story of how a \$100,000-a-night suite in the Palms Casino in Las Vegas got drenched in Damien Hirst. *By James Tarmy*
Photographs by Jeremy Liebman

Billionaire brothers Lorenzo and Frank Fertitta's first encounter with art was through their father, Frank Jr., founder of Las Vegas's Station Casinos. "My dad had started buying 19th century art," says Frank, the chairman and chief executive officer of Red Rock Resorts Inc. "And then Lorenzo and I became friends with people in New York, and became more exposed to contemporary artwork, and fell in love with it."

Their collection now includes works by Andy Warhol, Willem de Kooning, and Jeff Koons. (The brothers famously underbid on a \$110 million painting by Jean-Michel Basquiat, which ended up going to the Japanese e-tailer Yusaku Maezawa.) "We've learned over the years what we like," Frank says. "Our collection has continued to evolve."

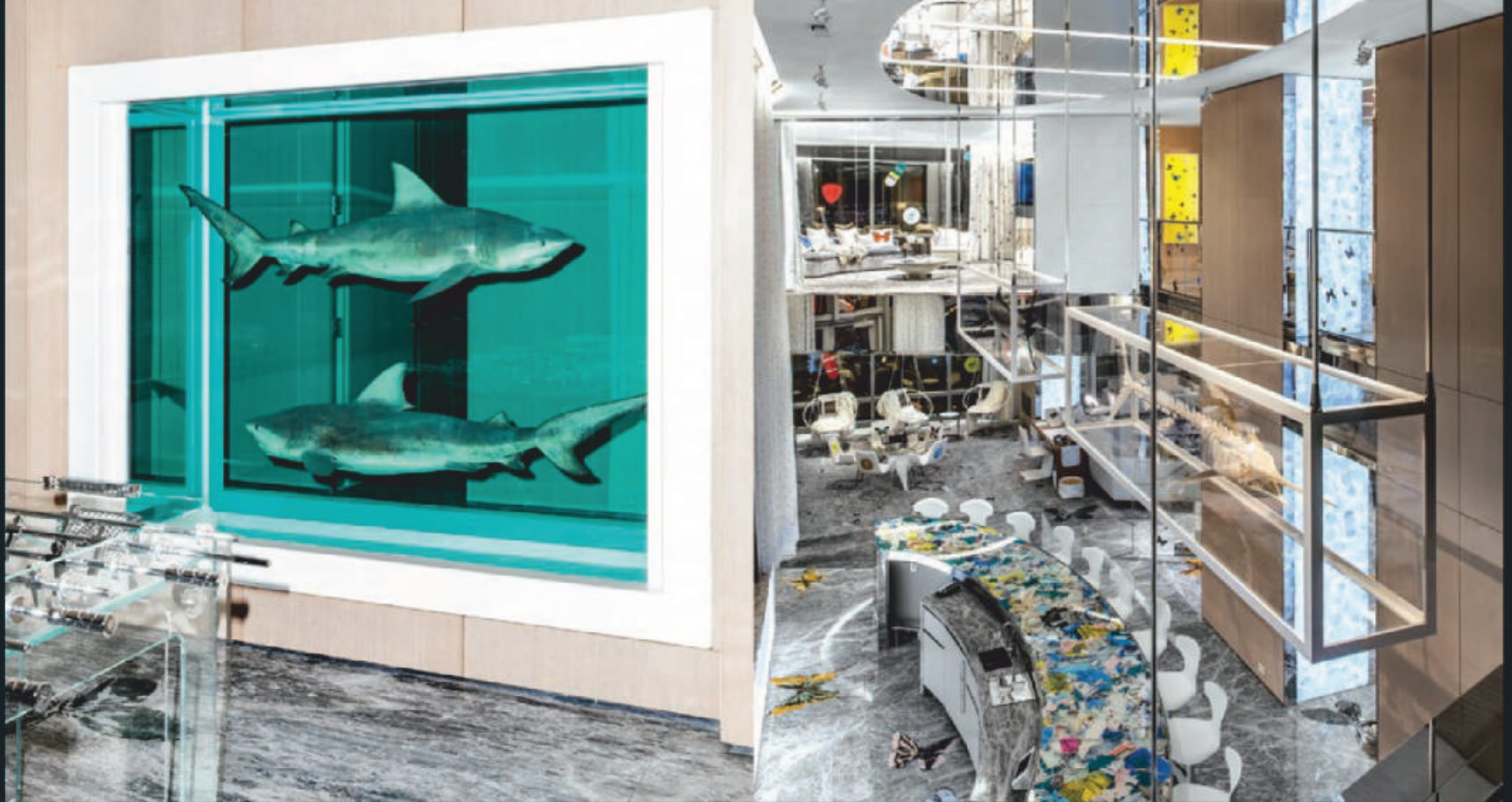
Parts of that collection are displayed in their homes, and

parts are on view in their corporate offices and casinos, including the Palms Casino Resort, purchased by the brothers in 2016. Recently they enlisted artist Damien Hirst to design a whole suite there, which they filled with his artwork.

"Some of the art—Warhols, Basquiats, Richard Princes—are from our collection, and all of the newer artists are owned by the Palms," Frank says. "It's a combination. As we collect, we may rotate something in and rotate some out. It's not static."

The art is part of a strategy that Lorenzo, vice chairman and director of Red Rock, says is aimed at attracting younger consumers. In previous eras, to draw people "you had pirate ships and volcanoes and jousting events," he says. "Vegas has grown up, and I think millennials have grown up. There's a higher level of knowledge and sophistication."

Hirst's sea creatures overlook the foosball table and dangle over the suite's bar, which contains "medical waste"



The Fertittas have gone to great lengths to cater to this new sophistication throughout the Palms. One of the primary beneficiaries of their efforts has been Hirst. "They've bought a lot of work from me in the past," he says. "They've bought some 18-foot spin paintings and a 40-foot dot painting and a dove in formaldehyde. I was like, 'Where are you actually going to put it?' And they said, 'Our offices.'" That, Hirst says, came as something of a surprise, given that many of his collectors buy art as an investment and immediately put it into storage. The Fertittas "would buy and couldn't wait to put it on the walls."

When they told him they'd purchased Hirst's 1999 work *The Unknown (Explored, Explained, Exploded)*, a shark in formaldehyde, and asked his permission to make it the centerpiece of a new bar at the Palms Casino, he immediately agreed. "They designed the whole bar around it." They added 16 of his spot canvases to the room and commissioned him to design the coasters and cocktail napkins.

Then, in 2017, when the brothers visited Hirst's exhibition in Venice, Italy, and came across his 60-foot-high colossus *Demon With Bowl*, the relationship went a step further. "We walked into the Palazzo Grassi, where it was being shown, and that was right around the time we were doing the pool and club area [of the Palms]," Lorenzo says. "I think we looked at each other at the same time and said, 'It has to go into the Palms pool.'" (The reported price of the work was \$14 million; a representative for the resort declined to comment.)

Hirst's final contribution to the Palms was a

9,000-square-foot suite filled with his art and decorations, which was unveiled at the beginning of March.

The Empathy Suite will be provided gratis to gamblers at the casino with a \$1 million-plus line of credit. It can be rented by risk-averse guests for \$100,000 a night.

By the time Hirst was hired, the architecture firm Bentel & Bentel had begun to design the suite. "I was brought in quite late, and they were quite relieved when I started adding butterflies in similar colors" to the existing scheme, he says.

When he was done, Hirst had designed the curtains, wallpaper, bathroom stools, living-room pillows, embroidery on the furniture, and embossing on the leather upholstery. He also decorated the suite's support columns, bathroom tiles, headboards, carpets, and windows, and he gave the billiard table its "spin" design. A jacuzzi that juts perilously out of the side of the building is cheerily emblazoned with yet more butterflies.

In addition, the Palms purchased six of the artist's works and installed them in the suite. The overall effect isn't subtle, and it's without a doubt a Hirst-designed interior.

"When you go into this suite, there is Damien's touch in every corner, and it's done in a very tasteful way," Lorenzo says. "I think he's balanced [his work with] the opulence that we want to provide at the property." The suite, he continues, does not have an "I can't touch that" feel.

"I don't want [guests] to think so much about the art," Hirst says. "I want it to be a place where you can hang out and have a good time—the opposite of a museum." **B**

The Rear Rules

We tested eight luxury vehicles designed with the back-seat passenger in mind

By *Hannah Elliott, Kyle Stock, and Brett Berk*

ROLLS-ROYCE PHANTOM EXTENDED WHEELBASE

The rear cabin of the Phantom EWB is immense—stretching 9.6 more inches than in the already sizable base car. Its two thrones perform the typical massaging, heating, cooling, and reclining, and buttons operate tray tables, tablets, doors, footrests, and the cloth curtains. There's even a power opening for the Champagne cooler between the seats (the cut crystal glasses are manually operated). With all the sound insulation in the Phantom—even the tires are filled with noise-deadening foam—you'll barely know the car is running. **\$525,000 ★★★★★**

BENTLEY MULSANNE

The Mulsanne is the elegant flagship of the Bentley line, with an interior covered in

tanned hides (24 colors on offer; 150 hours to complete) matched by knurled knobs and chrome finishing. Hand-polished, unbleached wood veneers make the cabin feel so warm it almost blooms; ambient lighting throughout is adjustable to every mood. Two 10.2-inch tablets can play live TV and make calls via Bluetooth headphones. Internal memory, micro SD, and USB technology is placed strategically for use while you're reclining in the massaging seats or pouring a glass from one of the three optional bottle coolers. Individual footrests in plush lambswool come standard. **\$304,670 ★★★★★**

LEXUS LS 500 The Lexus isn't nearly as large or esteemed as its swanky rivals, but it offers one of the most precious

cabins in the field. Silky leather is nipped into patterns that flow seamlessly into the architecture of the doors and windows, which are accessorized with handmade herringbone wood trim and starbursts of Kiriko glass. A seamless seat-back compartment stows laptops and ephemera, so it's a tidy space to be in—and at a max tilt of 48 degrees, the aft seats are the closest the industry gets to a 70-mph hotel room. **\$98,400 ★★★**

MERCEDES-MAYBACH S 650

The Maybach brand takes top-notch Benz products and adds more. Here, that means a wheelbase stretch of 8 inches, which allows the rear seats to recline 43 degrees. If the four-way adjustable headrests aren't enough, there are attachable monogrammed quilted pillows. Passengers can also enjoy an extendable calf support (the right rear seat gets a power footrest, too), a massage program meant to feel like hot stones, power-folding tray tables, and heated armrests. A small refrigerator can chill your Champagne, which you can serve in handmade silver flutes. Cooled (and heated) cup holders handle your drinks, while special glass in the panoramic sunroof darkens at the touch of a button. A Wi-Fi hotspot allows streaming on your devices or the seatback tablets. **\$199,900 ★★★★★**

PORSCHE PANAMERA TURBO EXECUTIVE

The Executive stretches the standard Panamera Turbo by 6 inches at the wheelbase, and an enormous sunroof yawns the length of the cab, making it perfect for cloud-gazing—if you're not distracted by 10-inch entertainment screens and Bose surround-sound speakers. An active carbon filter traps pollen, airborne pollutants, and viruses and bacteria. Best of all: The Panamera is one of the few all-wheel drivers on this list. **\$161,900 ★★★★★**

LINCOLN CONTINENTAL RESERVE

The back seat of this car, which is replacing the Town Car in fleets the world over, adds a touch of theater to almost everything. Buttery leather is bordered with ash-wood trim shellacked to a candylike sheen. The armrests have ashtrays (so retro!), and the coffin-heavy doors open with the push of a button. In addition to reclines and massages in the back, the rear-seat controls can also adjust the front passenger seat. Another subtle detail: active noise cancellation. **\$64,605 ★★★**

BMW M760I XDRIVE You'll probably buy this with driving in mind—it has a potent V-12, which can be paired with all-wheel drive, allowing superb traction and Corvette-beating acceleration. But the ride isn't too shabby, either. The rear seats recline, heat, and cool, and they feature eight massage modes, including two of what BMW calls "Vitality" programs. The touchscreens lead passengers through the stretching and breathing exercises of these seated workouts. There's Wi-Fi, but only the right seat gets a folding worktable. A small, removable tablet/remote allows passengers to tweak environmental settings. An atomizer mists the cabin with a scent in three adjustable strengths. In the 7 Series, the panoramic sunroof can be digitized with pinpoint LED lights in different colors. **\$156,700 ★★★★★**

JAGUAR XJL SUPERCHARGED

A half-century since it hit the road, Jaguar's biggest cat is still a stunner, and its V-8 is more athletic than most of the pack. The longer-wheelbase version of the XJ offers an extravagant 3.6 feet of legroom in the back, and the seatbacks can be appointed with stowable 10.2-inch high-definition screens, folding business tables, and footrests. Just-right LED reading lights and a state-of-the-art Meridian sound system complete the package. **\$97,200 ★★★★★**



The Phantom has two of the most fabled thrones outside a fairy tale

Step on It

Keeley guitar pedals are a beautiful way to bring the noise
Photograph by Stephen Lewis

The sound of an electric guitar is born in a range of places: its strings, its pickups, the amplifier, and, of course, the guitar itself. (The player has a lot to do with it, too.) But the most distinctive elements of a guitar's tone can be traced to effects pedals: Take *Satisfaction*—that's Keith Richard's Maestro Fuzz-Tone FZ-1 in your head. Jonny Greenwood's guitar on *OK Computer* sounds barely tethered to Earth thanks in part to a Boss RE-20 Space Echo. Pedals are to a guitarist what spices are to a chef—a means of creating sensations that technique alone cannot. Like the hottest chiles, some pedals are rarely used. On the other hand, the \$179 Retro Super Germanium Phat Mod, from Robert Keeley Electronics in Edmond, Okla., is like high-grade black pepper that gives a buzz to everything it touches.

THE COMPETITION

- The Clover (\$199) from JHS reimagines the Boss FA-1 FET preamplifier that was so critical to The Edge's crystalline sound on *The Unforgettable Fire*. With tone and volume controls, as well as XLR outputs to use with acoustic instruments, the

Clover is designed to give your sound a saturated yet clear boost.

- First released in 1979, the Ibanez TS808 Tube Screamer became an instant classic, thanks in part to the embrace of blues legend Stevie Ray Vaughan. This year, Ibanez is releasing

the 40th Anniversary TS808 Tube Screamer (\$285), with a glittering red case as bright as the pedal's sound.

- The irresistibly named Total Sonic Annihilation 2 from Death by Audio (\$250) is a pedal for your pedals, creating controllable feedback loops of

whatever you play into it.

THE CASE

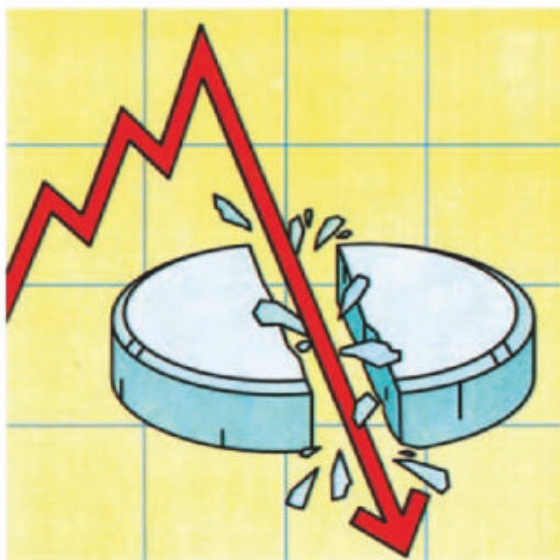
Keeley's devices have been under the boots of musicians ranging from country superstar Brad Paisley (an early supporter) to Bob Weir of the Grateful Dead to John Mayer. This

pedal, though, looks almost too nice to dirty up. The case is screenprinted with a stylized rocket that creative director Robby Harris says was "inspired by vintage Japanese robot art." The silver knobs, meanwhile, control volume, tone, and "nitro" (or gain). Key to the sound of the Retro Super Germanium Phat Mod is a Germanium transistor, which gives the ineffable tone of a vintage amp at the ragged edge, even if you're playing at don't-wake-the-baby volume. \$179; robertkeeley.com



The Perpetual Motion Lawsuit Machine

By Joe Nocera



Gerneth v. Chiasma Inc.

Case #1:16-cv-11082

● Chiasma, which has no revenue, spends \$27 million to \$30 million a year on drug development. By the time it went public, it had raised more than \$200 million in venture funding; its most recent disclosures show it has about \$40 million left. That seems to give them 18 months to get Mycapssa on the market.

● How are the drug's prospects? Quite good. Chiasma has gone back to the drawing board, and it's conducting a new Phase III study it says will be more to the FDA's liking. There is wide expectation that Mycapssa will be approved before the end of the year—and several analysts have “buy” ratings on the stock.

❶ **THE PROLOGUE** There once was firm called Lerach Coughlin Stoia Geller Rudman & Robbins. Its leader, Bill Lerach, terrorized corporations by suing them whenever their stock suddenly dropped, and then extracting a settlement from them to make him go away. In 2008, Lerach went to prison for paying kickbacks to people who agreed to be plaintiffs in his suits, and the firm was renamed Robbins Geller Rudman & Dowd. If the recent case *Gerneth v. Chiasma* is any indication, it hasn't changed its ways.

❷ **THE ORIGIN** Biotech company Chiasma has been developing Mycapssa, a niche drug for a terrible disease, acromegaly, that results from excessive growth hormone. On June 15, 2015, the company filed a new drug application for the oral treatment with the U.S. Food and Drug Administration. The next month, Chiasma went public at \$16 a share, raising \$100 million. By early September of that year, the stock had reached \$28. But in April 2016 the FDA concluded that the Phase III trial for Mycapssa was faulty; it hadn't compared the results from patients taking the drug to those on a placebo. The stock fell. Robbins Geller rustled up a lead plaintiff and sued.

❸ **THE CASE** Robbins Geller argued that early shareholders bought Chiasma stock believing the Mycapssa application was strong enough to gain approval. The company said its IPO prospectus was full of cautions, noting how few drugs the FDA approves and raising the possibility that Mycapssa could be rejected entirely. When a federal judge refused to toss the case in February 2018, a settlement became inevitable. (Neither party responded to requests for comment.)

❹ **THE SETTLEMENT** On Feb. 27, Chiasma agreed to pay an \$18.75 million settlement. The agreement stipulated that it had done nothing wrong and just wanted to put the litigation behind it. Sound familiar? It also says the lawyers will be paid out of the \$18.75 million. That's good news for Chiasma, which doesn't have to pay the plaintiffs' legal fees, but not so good for the plaintiffs themselves.

❺ —Nocera is a business columnist for Bloomberg Opinion



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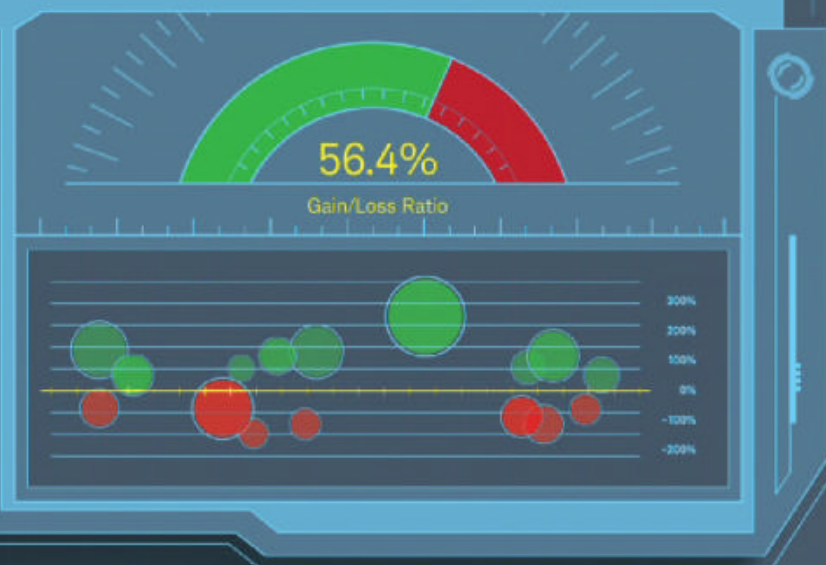
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